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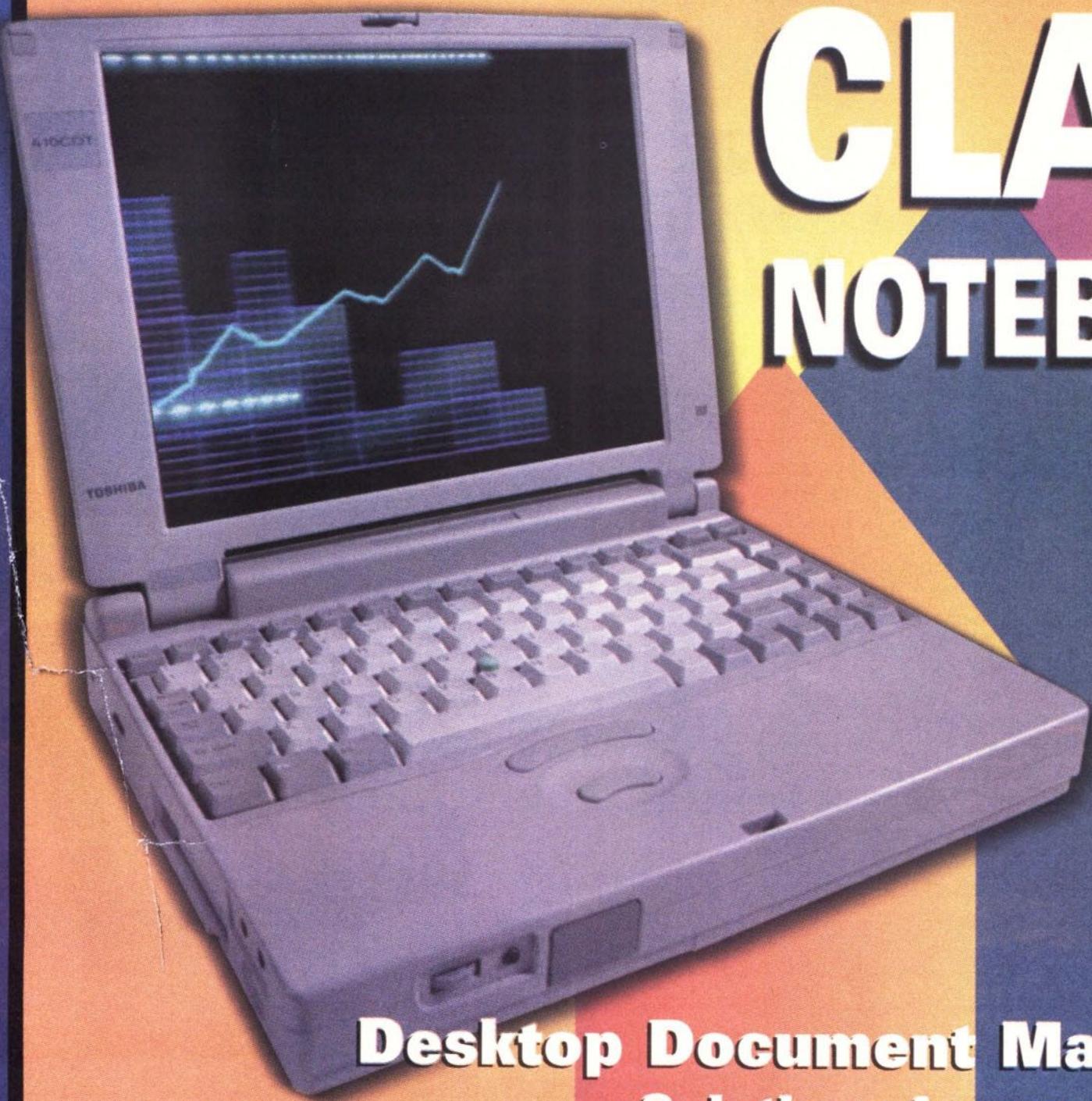
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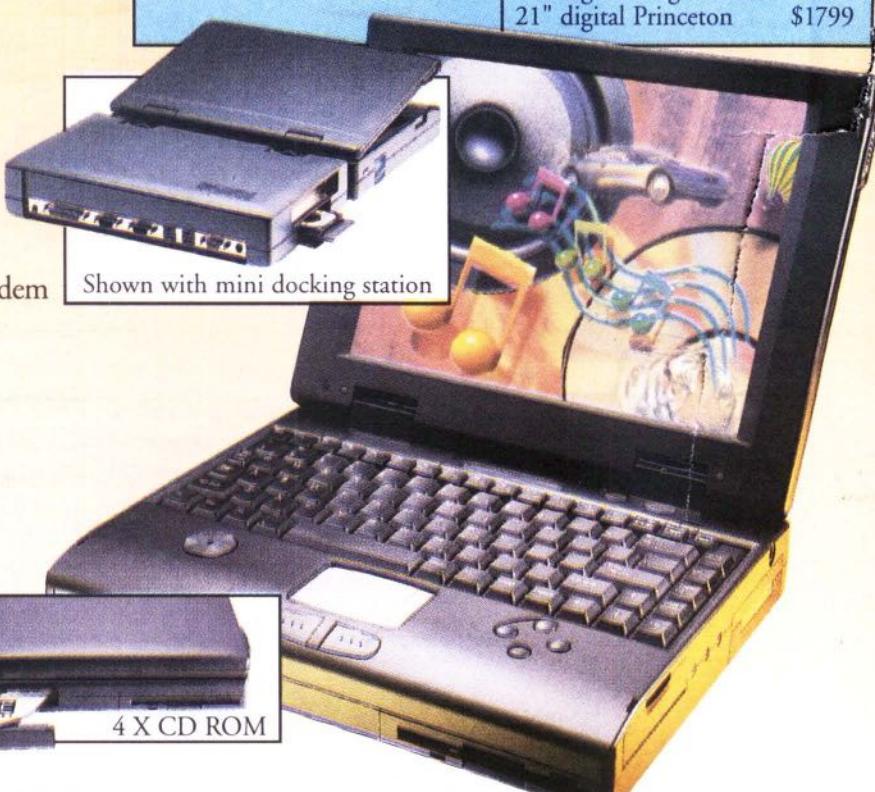
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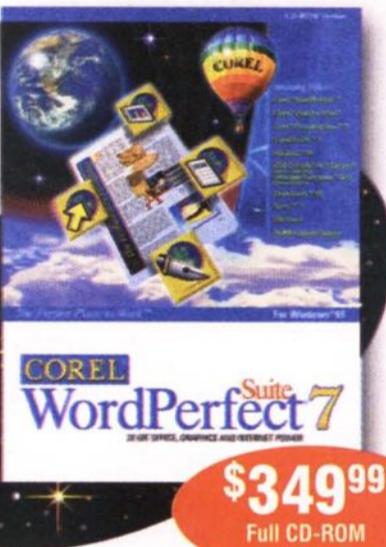
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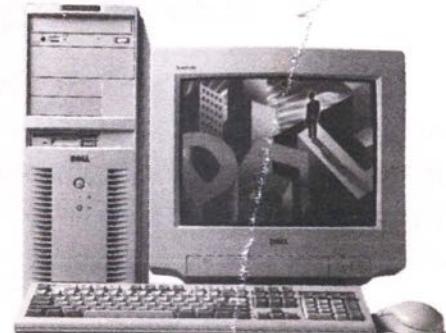
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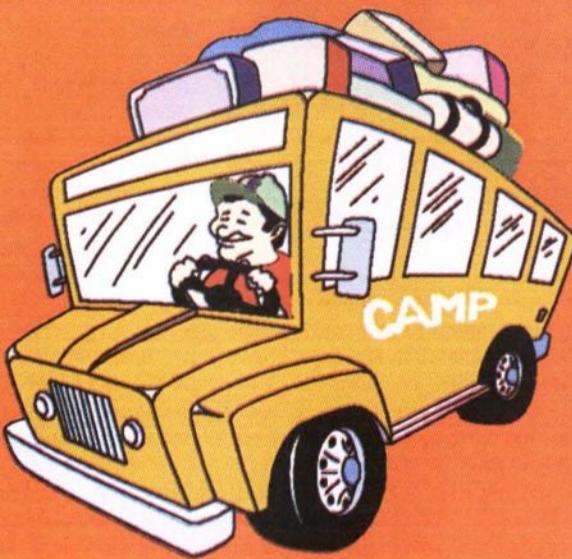
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COMING UP IN BC EDITION

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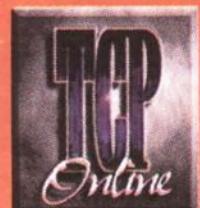
- Computers for Students, Sound Cards
- Classifieds Mon., Aug. 5
- Ad Deadline Wed., Aug. 7
- Camera Ready Thu., Aug. 8
- Distribution Fri., Aug. 23

OCTOBER 1996

- Budget Power Computers, ISDN Connections
- Classifieds Mon., Sep. 9
- Ad Deadline Wed., Sep. 11
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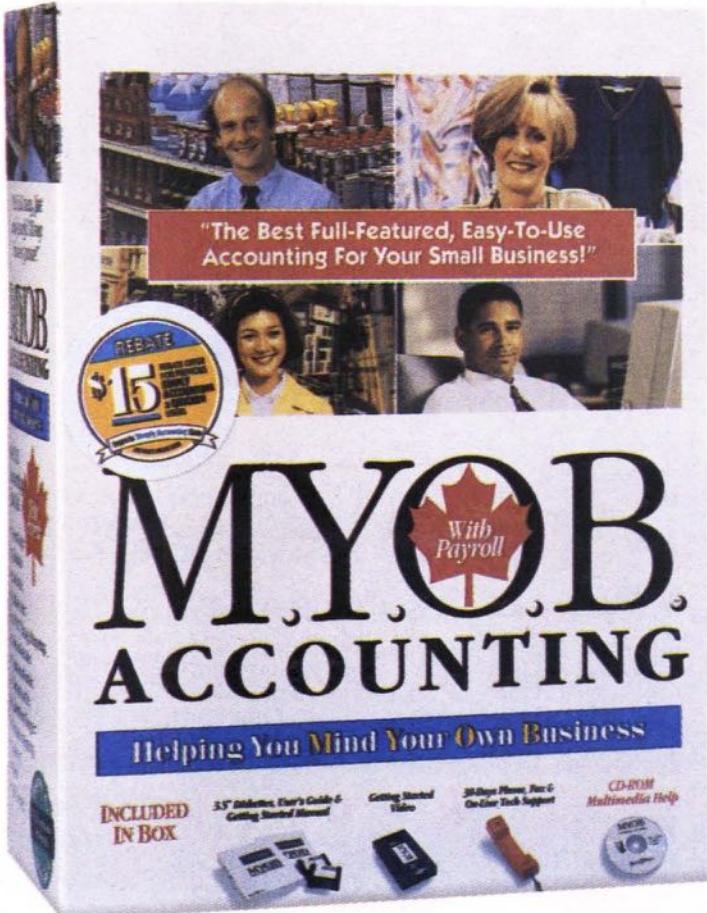
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"That's all the time we have folks, join us again next week..."

I did a computer radio show recently and, as often happens on radio, I didn't get to go through all the material I had prepared (you know the game—this hour has 22 minutes).

I had what I thought was a good summary of what to look for when purchasing a computer, so I'd like to share it with you. Much of this information came from reading the ads in *The Computer Paper* and talking to our Lab-meister, Chris Fisher at TCP Labs. (To hear the radio program, check out www.cknw.com on the Internet. To do this, you need RealAudio 2.0.)

Power shift

This year has been one of incredible improvements in what you can get for your money. In September of 1995, an entry-level machine was a 486 with 8 MB of RAM, a 300 MB hard drive, a 2x CD-ROM drive, a 14-inch monitor, some cheap speakers, a 14.4K modem, and software—all for about \$3,000.

Today, the 486 has all but disappeared from the desktop market, a casualty of the aggressive moves of Intel, in its desire to prevent the loss of market share to other CPU makers like Cyrix. An entry-level machine today is a 75 to 100 MHz Pentium with 8 MB of RAM, a 500 MB hard drive, and a 4x CD-ROM drive—all this starting at around \$1,600.

What to buy today

This is a loaded question. Obviously what you buy is best determined by thorough evaluation of your needs, what you will be using the computer for, what software you will be running, and what kind of computer your friends/company/available support people have. (Many people will want to consider purchasing a Macintosh because of their ease of use and the fact that their friends have them and love them. For publishing, music, Web creation, and digital video, they are a popular choice. Many of my comments on RAM, hard drives, CD-ROM drives and modems below apply to Macs as well, just ignore the bits that are specific to PCs.) Having said that, the lion's share of people today are likely to buy some kind of IBM-PC-compatible.

After choosing a brand name and a vendor, consider what you want in your new PC.

Motherboards and RAM: Get faster EDO memory and L-2 pipeline burst cache of at least 256K, they will add five to 10 percent to the price, but can easily improve performance by more than that. Almost all motherboards do Plug and Play now if your operating system supports it. If possible, buy a motherboard that supports a range of processor speeds because you will likely upgrade the processor over the life of the system. Again, if you can afford it, buy lots of RAM. RAM prices have dropped amazingly in the past few months, and because it is such a commodity, it is difficult to know if it will continue downward. The "sweet spot" for running basic applications in Windows 95 is 16 MB of RAM. Photoshop, CAD programs or digital-video applications need 48, 64 or even 128 MB of RAM to really perform.

Chips and things: Hurrah to the forces of competition. Processing power is up by a huge leap. We may be nearing the end of Moore's Law, which claims that there is a doubling of processor power every 18 months. It is hard to imagine how vendors can continue at this rate of innovation, but they have surprised us continuously in the past.

Modems: Get a 28.8K modem for the extra \$80 over a bundled 14.4K modem. If you are Net surfing, you will thank yourself after a couple of minutes online. If plan to earn your living through

the Internet, consider that you can get an ISDN modem for less than \$400. An ISDN line installation from the phone company will cost you \$100 or so, and then you will pay about twice the usual business phone rate for the monthly charge on the line.

Video cards and monitors: Get a better quality video card. Good names include Matrox and ATI (both Canadian companies) and Diamond. In general, you get what you pay for in video cards.

More video RAM will give you more colors. Buy a big monitor if you can afford the bucks. A 17-inch monitor will still be giving you pleasure in a few years, even if you have sold off or upgraded the system underneath it.

Hard drives: Hard drive prices took a drop over a period of several months and now seem to have stabilized. SCSI drives are still king on the Macintosh side and for servers. EIDE is for the masses. It now supports up to four drives (two

master-slave relationships), including CD-ROMs and removable or tape drives. EIDE also does faster throughput now and supports higher capacity drives—1.2 and 1.6 GB drives are the bestsellers today. Top performers are Quantum Fireball, Western Digital Caviar and Seagate Decathlon drives.

CD-ROM drives: Apparently, the 6x and 8x CD-ROM drives are not worth it if you are just playing games. Most games are optimized for 2x models, which are the largest share of the market right now. Working with large databases, full-motion video files, or large Photoshop files can justify the purchase of faster CD-ROM drives.

Multiprocessors and Pentium Pro: Leave these until next year, when Windows NT becomes Microsoft's new baby. Both items need true 32-bit applications that are written specifically to take advantage of these new technologies. Look for MMX chip sets to show up late in the year, which will breathe new life into the Pentium.

Oops!

If you buy all the stuff I have listed above, you are back up to spending over \$3,000 for your computer. Oh well, you really will have a very powerful system when all is said and done. One last thought on the topic: a computer system is only as good as its weakest link. I usually include the carbon-based unit in front of the monitor in my description of what constitutes a system.

Damn, this is just like the radio. I just get going and I am out of time/space. Time for a commercial.

People often give us grief these days about not being able to find a copy of *The Computer Paper*. The problem seems to be that when we started our publication almost nine years ago, the number of people interested in computers was perhaps 10 to 15 percent of the population. Today the market research people tell us that every second household has a computer. We have attempted to deal with the issue by gradually increasing our circulation. We have to be careful with that because if we increase too much, our ad rates (our sole support, because we are a free publication) have to go up. Many of our core advertisers have been facing fierce competition in recent years.

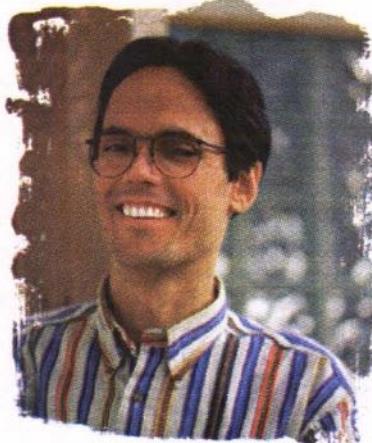
Another approach has been to launch sister publications in the larger markets. Towards that end, we purchased *Toronto Computes!* three years ago and have launched *Canada Computes!* and *Quebec Micro!* These publications come out two weeks after *The Computer Paper*, and effectively make our publications biweekly, but it still is not enough.

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Another take on digital cameras

I read with interest about the digital cameras (TCP, June 96). However, I use a dirt-cheap alternate product: the Snappy. Since the most of us have a camcorder, the picture quality of those digital cameras isn't that great anyway, why not save a bundle? All one has to do is connect the Snappy to the printer port, install the software and connect the camcorder to the Snappy.

Joseph S. Berger

DT replies: Good point, the Snappy sells in Canada for about \$300, less than half the cost of the least expensive digital camera. The catch, of course, is that if you don't already have a camcorder, you'd have an additional expense.

For readers who don't know, the Snappy is a video frame grabber that allows a user to capture images from a video source—a camcorder, for example—and loads them into a computer as still images. We know of one Victoria, B.C.-based journalist/Web designer who covers the Indy race car circuit and the annual Swiftsure yacht race, 8 mm camcorder in hand, and uses the Snappy to create still images for his Web page. You can check the site out at http://vvv.com/hi_tech.

Network printer review unfair

Your review of network printers could not have been more timely from my point of view as I have been asked by my department to select a network printer capable of servicing a large workgroup of 20 users. I too have done my homework and determined that our best choice would be either the Xerox 4520 or the HP LaserJet 5Si MX. Imagine my surprise when I discovered that you had chosen the Xerox over the HP and mostly due to price. In fact the price you mentioned for the HP absolutely astounded me.

On closer examination it became obvious what you had done; you had compared an HP printer loaded with options to a Xerox base model. Let's set the record straight: the HP 5Si MX weighs 99 lb. (44.5 kg) not 300 lb. (135 kg). It does not come with the 2,000-sheet input tray nor the multibin mailbox which you included in your estimates of weight and cost. It does come with three paper trays, two of which handle all sizes of paper up to 11"x17" and one of which is multipurpose for special media.

From the editor

Continued from page 6

to try to sell subscriptions. Why pay when you can get it for free, and when getting it through the mail can mean up to a 10-day delay in receiving the paper? The reality today, though, is that many will miss issues if they rely on the old tried and true method. If you fall into this category of reader, and you want to make sure you get your copy, please consider spending \$24.95 to get a one-year, 12-issue subscription.

To sweeten the subscription deal a bit, this month we are giving away a copy of The Stereographic Screensaver from VisionFind to the first 500 people who respond to this offer. This software is a twist on the popular stereographic images. The screen savers work the same way as the images that you find for sale as books or posters in malls and art shops. In order to see the 3D effect you must learn to set your point of focus behind the actual image. The back-lighting effect that you get from displaying the images on a computer monitor gives the images contrast and dimension that you cannot get from a regular print. So stunning are the images that you will want to drag friends and family to the computer to have a look. Check out our subscription ad on page 82.

See you at Comdex Canada, July 10-12, at the Metro Convention Centre in Toronto. Our booth should be at the top of the escalators in the main Convention Centre.

Enjoy the issue.

Douglas Alder
Editor/Publisher

It also comes with a network interface card which the Xerox does not and comes with more standard memory than the Xerox. Both are important when you consider that these are classed as departmental (i.e., large workgroup) network lasers. The base HP 5Si MX can be found in the Montreal area for \$5,650.

The real point of my diatribe is that I depend on informed opinion to help me to make informed choices. In this particular case I knew enough to spot your mistake, what if I had been looking to buy a product that I knew nothing about? In future, please compare apples with apples.

Guy Rimmer, McGill University, Montreal

SH replies: I'll do my best to address each of the points you raised, in the order in which they were raised.

As far as the weight of the HP is concerned, yes, you are correct in that it weighs 99 lb. (44.5 kg). However, the 300 lb. (135 kg) we stated was "as tested," including all the various options. You are also correct in stating that it does not come standard with a 2,000-sheet input tray, nor the multibin mailbox option, but the fact is, we never said it did. If you take a look at the chart and the writeup, you'll notice that it states that these are both options and were not included in the price of \$6,863. They were included in the total weight, which, as I said before was 300 lb. (135 kg) "as tested."

We did make an error though, in stating that the standard input capacity on the Si MX was 500 sheets, but in fact, it is actually 1,100. You also mentioned that the HP comes with more memory as standard than the Xerox. Quite true, however, with RAM prices being as low as they are, you could easily upgrade the Xerox to the same 12 MB for an additional \$50 with the purchase of a 4 MB SIMM module.

The same goes for the network interface, which can also be added, and the price would still be well below that of the HP. Note too, that the Xerox has a print resolution of 800x800, which is something that you cannot upgrade on the HP. And although the Xerox is 4 pages per minute (ppm) slower than ➤

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the HP, it still has a print speed of 20 ppm. As far as the price goes, I've just concluded a conversation with a representative from HP, and she assures me that the list price of the unit was, and still is \$6,863.

When it came to picking our winners, we leaned more favorably towards the Xerox, but this does not mean that the HP isn't better suited for your particular application and environment.

Did Marilyn like her men that old?

Hi, I really like *The Computer Paper*—excellent blend of technical, reviews, how things work, ads, etc. But in the May '96 review called "Hello, goodbye Norma Jean..." by Ross MacDonald,

there's a mistake. Marilyn was married to the playwright Arthur Miller, not the author Henry Miller. Arthur, of course, wrote such plays as *Death of A Salesman* and *The Crucible*, whereas Henry wrote the sexy stuff such as *Tropic of Capricorn*. Henry Miller would have been old enough to have been Marilyn's grandfather.

Seymour Trierger, via Internet

First it worked, now it doesn't

I have a i486sx33 motherboard that is giving me a headache. At first, it worked fine. Later, it only worked when it wanted to. Now, it doesn't work at all.

When I turn on my computer, the power-sup-

ply fan starts, the hard drive spins up and the turbo LED also goes on—but the monitor remains completely blank.

Therefore, I can conclude that power is definitely being supplied to the motherboard from the power supply, but why is it that the regular boot-up procedure (RAM, keyboard, and video checks, and further execution of operating system) does not occur? Remember, it used to do this once in a while, then became worse until it just did not work anymore—so it can't be dead! Besides, power still flows through it. Any advice will be greatly appreciated.

Jimmy Boutin, Toronto

SH replies: If you have power, and are not seeing anything on the screen, it sounds a lot like either a loose connection, or a faulty component. Are you getting any beeps from your PC speaker? If you are, then it's just a matter of looking up what the sequence of beeps mean for your particular make of BIOS, and taking it from there.

However, if that is not the case, then I would start by checking to make sure that your video card and RAM are properly in place. If you try this and you're still having problems, my next recommendation would be to swap components one at a time until you isolate the problem, or can at least conclude whether or not it's a problem on the motherboard or with an actual component.

Start by removing all the cards from your slots, except for your I/O, and video cards. Power on the system, and see if anything different happens. If there is no change, swap your video card with another, and see what occurs, then proceed with different SIMMs. If none of this changes anything, then it would probably be a fault on the motherboard itself, and should be looked at by a technician.

Where art thou, UART?

I am a user of an external 14.4K modem and I have a 8250 UART chip. I am told that if I want my modem to run at full speed, I gotta have a 16550 UART chip. I am having trouble finding one, and someone told me that nobody sells just a UART chip anymore. Any suggestions?

"Donkey Kong," via Internet

SH replies: You can buy the 16550 on its own, but I would recommend you go out and buy a whole new I/O card with the 16550 right on it. It'll only cost you a few dollars more, with EIDE cards running for \$30-40 complete with the UART.

Team OS/2er cheers

I was pleased to see an article written about the forthcoming release of IBM's new and improved OS/2. As a faithful OS/2 user for the last three years I have developed some loyalty to the "Big Blue's" operating system. Most major publications have questioned the future of OS/2, while you report on it. Thank you once again. It just goes to prove that it is brighter on the other side of the window!

Brian J. Babiuk, East St. Paul, Manitoba

Upgrade chips: a maybe it is

In your May 96 issue, the articles "To P or not to P" and "Upgrading your computer" were very informative but had opposing views on the Pentium upgrade for 486 computers. Recently, I have read about the CPU MAXimiser by Gainberry computer products. They say it can upgrade my 486SX-33 to 586-100. They said this upgrade costs \$139.99. Is it worth it? Help. A yes, no, or maybe will suffice for an answer as long as it's honest. Thanks for your time.

Eric Bergeron, via Internet

DT replies: We have a review of Gainberry's "586" upgrade chip for portable computers in this issue, but we haven't yet tested the desktop computer upgrade product. So, until we've had a chance to review it, a maybe will have to do.

You can try this at home

I am writing regarding your article about affordable removable storage (see "Iomega's Zip versus SyQuest EZ135" in the June '96 issue). I just wanted to let your readers know that there is another viable application for these devices besides backup. I own the Zip and EZ135 drives, and I love both of them. Contrary to recommendations of using the drive for backups only, I use the drives as though they were hard disks. True, they are slower than most drives, but I can settle for slower speeds if it means I can save a LOT of space on my hard disk. I have Microsoft Office 95 installed on one EZ Disk, and Corel Draw 6.0 on another, and so far have had absolutely no problems with either of them. In addition, I run Netscape off a Zip disk and have, as of yet, had no problems with it. The cache directory can get quite large, and it is nice to know that it is not filling the hard drive.

Aaron Perl, via the Internet



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An Epson Color Pak advertisement. The top half features the word "EPSON" in large, bold, white letters on a blue background. Below it, a blue circle contains the slogan "no holds barred" in yellow, followed by "sky's the limit" in blue. A dotted line forms a circle around the text. The bottom half has a yellow sun-like shape on the left and the words "look your best" in white cursive script. Below that, the word "color" is in blue and "pak" is in yellow, with a small blue arrow pointing right between them.

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Canada is top importer of American electronics

WASHINGTON, D.C. (NB) — The United States exported more than US\$125 billion worth of electronics products in 1995, yet still showed a US\$28 billion trade deficit between electronics exports and imports, according to recently released figures from the Electronic Industries Association (EIA).

The association's analysis of Department of Commerce export data indicates Canada was America's biggest market, importing more than US\$19.3 billion of U.S. electronic products in

1995. This was an increase of 19 percent over its 1994 imports worth US\$16.2 billion.

Japan ranked second in export markets for U.S. electronic products, EIA vice-president Mark Rosenker told Newsbytes.

Japan bought more than US\$13.6 billion of electronic products from the United States in 1995, a 33 percent increase over 1994's total of US\$10.3 billion, Rosenker said.

Other major importers in the US\$125 bil-

lion worth of electronic products U.S. electronics companies sold overseas last year include: the United Kingdom, US\$9.1 billion; Mexico, US\$8.8 billion, and Singapore, US\$7.4 billion.

Although Japan was the number two importer of U.S. electronics goods, it led in exports to the United States, Rosenker said.

At US\$9.6 billion, Canada was the number seven in electronic goods exports to the U.S. □

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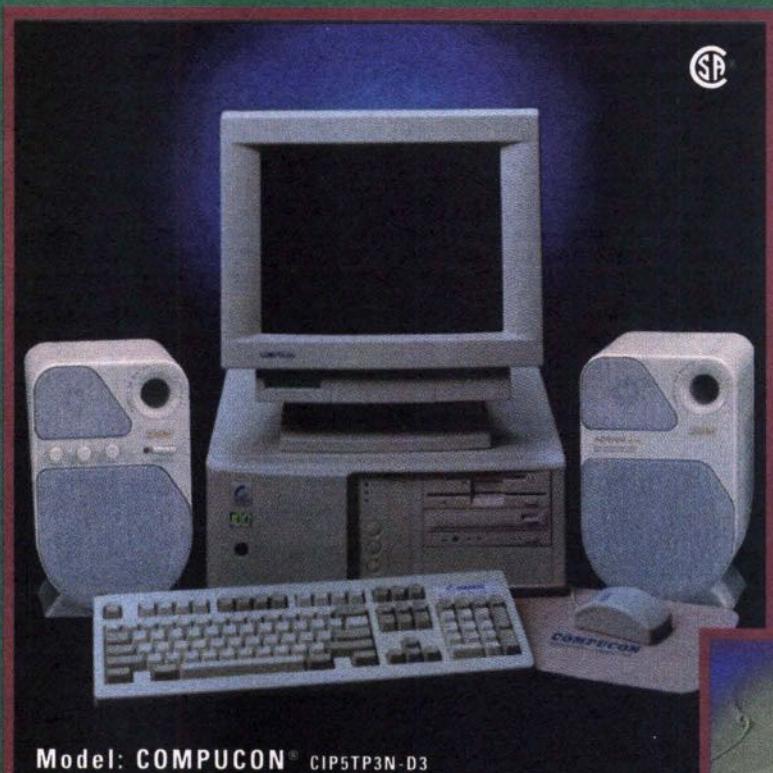
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The two machines (Pentium 75 and 100) from Ultinet leave the competition dead in the water. Both place very high in their respective categories on price & performance...

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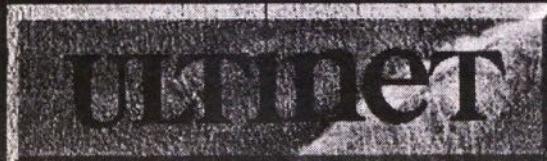
BEWARE OF DUMMY CACHE

Tests were done using PC Magazine Winbench 96 tests with Windows 3.1 and 100 MHz Pentium CPUs installed. The same video card/hard drive & memory were used for the comparison. The regular 256k sync cache motherboard was 25% faster than the one with writeback or dummy cache. Dummy cache was 2% faster compared to a board with no cache. Many suppliers use motherboards with write-back (dummy) cache. Always ask for motherboards with asynchronous or synchronous cache.

PERFORMANCE BENCHMARKS

Generic Pentium TRITON motherboard, 256k writeback (dummy) cache = 157
Ultinet, Pentium TRITON motherboard, 256k reg async industry standard = 196
Ultinet Pentium TRITON chipset motherboard, 256k sync pipeline burst cache = 223

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WHAT'S NEW

A sim game with soul • Many simulation games use real-world settings such as cities, theme parks and civilizations. LucasArt's new Afterlife simulation game turns this idea on its head as players assume the role of the enchanted regional manager of their own piece of the ethereal realm.

As souls move to their final resting places, the player tallies their good and bad deeds, sending them to their expected rewards. Players have to manage the arrival (and occasional departure through reincarnation) of souls as they develop areas for the seven deadly sins and their opposite virtues.

The expectations and needs of recently deceased souls have to be accommodated as efficiently and profitably as possible.

Happy souls lead to greater development with few complications. If they are not happy, chaos ensues and everything goes to you-know-where.

Disasters include Disco Inferno, where a large Travolta-esque character destructively dances across the screen, to the icy oblivion of Hell Freezing Over.

Players are rewarded for souls successfully processed with Pennies from Heaven, enabling further expansion in the afterlife. With billions of souls to keep track of, Afterlife does not subscribe to any one belief system, just the ones that affect gameplay.

Initially, Afterlife will be available only for Windows 95, with a Macintosh version to be released later. —KS-R

Contact: LucasArts Entertainment Company, Tel: 415-472-3400



Alchemical graphic tools updated for Windows 95

Alchemy Mindworks, based in Beeton, Ont., has long been helping people deal with image-file format compatibility—or the lack thereof.

Its popular Graphic Workshop for Windows has recently been updated for use on Windows 95 machines, taking full advantage of the speed of 32-bit processing.

The updated program lets Windows 95 users convert image files among the most popular formats, so they can be traded between such programs as Windows Paintbrush, PageMaker, MS Word, WordPerfect, Corel Draw, Deluxe Paint and many others.

Over 30 common image-file formats are supported. Users can view thumbnail images of their pictures, and a keyword-search function makes finding graphics among large collections of image files fast and easy. Users can also display slide shows of images, rotate, dither, scale, and flip images, and other functions typically reserved for more expensive graphics packages.

Alchemy Mindworks' new GIF Construction Set for Windows

enables users to create simple animated graphics for the World Wide Web without having to write complicated Java programs.

The program takes advantage of a little-known feature of the GIF-89 specification, allowing for animation contained within a single GIF file. Of interest mainly to Web developers, in addition to creating looping animations, users can also use the program to make transparent GIF files, add text to images, or use it as an add-on application for their Web browser.

Graphic Workshop for Windows 95 costs \$40, and GIF Construction Set for Windows costs \$20, plus \$5 shipping. Shareware versions of both programs are available from the company's Web site.

Contact: Alchemy Mindworks, Tel: 800-263-1138. Web site: <http://www.mindworkshop.com/alchemy/alchemy.html>

Search and Replace utility great for Web authors

Web authors know how frustrating it can be to change all of the hypertext links within a Web document—never mind an entire Web site. It takes a lot of time to search each page and change hypertext links to a new address, or alter other elements.

Now Web builders have Search and Replace for Windows 95/NT, an easy-to-use utility that searches multiple files/directories for words or phrases, then replaces them with another.

The program supports regular expressions (egrep-style), binary characters and blocks containing multiple lines to search and replace.

Search Results can be edited in context (several lines before and after), and files can be opened with associated viewers. Search results can be output to file (or printer), or sent to the Clipboard.

Dates and times of files can also be altered (to any other date and time). Search results are color coded, and many options including backups, logging, and file viewer, are also available.

While not designed specifically for Web authors, the program makes changing large groups of links and GIF-file references easy. It is also handy for people who have to make global changes to large numbers of documents, and to programmers.

It is available for \$30, or \$26 when ordered via e-mail. A Windows 3.1x version is included at no additional cost. —KS-R

Contact: Funduc, E-mail: funduc@sprynet.com Web site: <http://home.sprynet.com/sprynet/funduc>

AST announces under-\$1,000 PC

• AST Computer Inc. in the United States is offering a full Windows 95, multimedia-capable PC system for under US\$1,000.

According to AST, the Wal-Mart retail chain will begin selling a complete AST system consisting of a 14" SVGA monitor, 486 DX2/66 MHz-based PC with Windows 95, 8 MB of

RAM, 540 MB hard drive, 4x CD-ROM drive, SVGA graphics, and 16-bit sound.

Although the 486 processor has pretty much disappeared from the mainstream PC market, the system released by AST is capable of running virtually all current home productivity, education and entertainment software, at reasonable speed.



Alan Diery, the chief executive officer of AST, told TCP that industry talk over the last year of a \$500 computer is pretty much bunk because consumers don't want a "de-featured" computer.

Rather, he says, AST believes there is more market potential for a cost-reduced but still highly capable entry-level PC.

The recent steep declines in the cost of key components, including CD-ROM drives, RAM, hard drives, and 486 processors, have made it possible to reduce prices drastically.

The introduction of the under-\$1,000 PC is one of a series of initiatives AST is undertaking world wide as part of its revitalization effort, Diery said.

Although the most recent quarterly results indicated a \$115-million loss, and related job losses, Diery believes AST is over the worst of its troubles.

He said AST has radically reformed its speed of product development, and its control over unsold inventory.

Diery said the relationship with Samsung, which now has a controlling interest in AST, means AST can leverage Samsung's buying power for better prices and access to components, such as LCD screens, RAM and disk drives.

Contact: AST, Tel: 800-876-4278 or 905-507-3278. Web site: <http://www.ast.com>

Royal Ontario Museum Web site cool, not cold

Three months after opening its Web site to generally favorable reviews, Toronto's Royal Ontario Museum (ROM) announced that it has been visited by more than 85,000 Web-crawling dinosaur and archaeology buffs, and has netted five online awards.

The ROM site was named Canadian Cool site of the Day on Jan. 19, four days after its launch, and was designated "Top 5% of the Web" (an accolade the TCP's Web site has also shared—check us out at tcp.ca) by POINT, a major Web index service.

"This museum site is a pleasant departure from the let's-put-our-free-visitors'-pamphlet-online motif used by many similar sites. Instead, this art and science museum uses the Web as a separate but complementary part of the museum itself, which is exactly as it should be," according to POINT.

Contact: Royal Ontario Museum, Web Site: www.rom.on.ca

North Surrey Secondary Web site wins International CyberFair award • North Surrey Secondary took second place in their category at the International School CyberFair '96—a global competition celebrating the power of online communications to share and unite students in their communities.

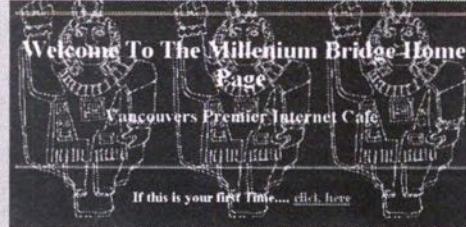
Participating students created a Web site that included information about businesses and organizations in their area—which is one of Canada's fastest growing communities. The goal of the Web developers was to showcase their new "high-tech" school and the developmental directions their community is taking.

As participants in a pilot program called Information Technology Management, the students were encouraged by their ITM mentor, David Penbergm, to create the site and enter the CyberFair.

The students—Salim Virani, Richard Workman, Casey Yee, Laura Cuzzens and Jeff Peter—participating are computer application students who assist staff and students with computer/technology related concerns.

The award ceremony, broadcasted on the Internet, was attended by over 10,000 students from 360 schools representing 30 countries. The International Schools CyberFair '96 is sponsored by MCI and Cisco Systems, and is managed by the Global SchoolNet Foundation.

Contact: North Surrey Secondary's winning Web site: <http://cyberfair.gsn.org/nss/nsshome.htm>



ages, and 10 Internet terminals (eight PCs, two Macs).

Use of terminals costs \$5 an hour, and you can set up an e-mail account for \$5 per month. The cafe is open 8 a.m. to 11 p.m. seven days a week.

Contact: Also check out the cafe's Web page: www.van-net.com

Rogers creates virtual gallery • NB — Rogers Communications Inc. is putting up a virtual art gallery on its Web site. The communications firm, with interests in long-distance telephony, mobile communications, cable television, and print media, said 11 Canadian art museums will take part in the artWAVE@rogers project. Works from current exhibitions of Canadian art will be displayed online starting in July, on Rogers' Web site. The participating museums will also post information about their own events. They are the Art Gallery of Nova Scotia, the Musee d'art contemporain de Montreal, the National Gallery in Ottawa, the Art Gallery of Ontario and The Power Plant in Toronto, the Art Gallery of Hamilton, the London Regional Art & Historical Museum, the Winnipeg Art Gallery, the Edmonton Art Gallery, the Glenbow Museum in Calgary, and the Vancouver Art Gallery.



Contact: Rogers' Web site: <http://www.rogers.com>

Best Wishes, a 1995 work by artist Michael Buckland, is part of the Power Plant Gallery's Beauty #2 exhibition, which can currently be viewed through Roger's Virtual Gallery.

Silk Road CD-ROM first of Digital Journey series • VANCOUVER, B.C. (NB) — DNA Multimedia Corp. has announced The Silk Road, a multimedia tour of Asia on CD-ROM. The CD-ROM developer said this will be the first title in a new Digital Journey series.

The CD-ROM is meant to simulate a journey along the Silk Road, an ancient trading route into Asia. The presentation follows the caravanserai that traveled the road, with a number of parallel journeys on historic and modern-day routes in the region. The locations covered include the markets of Kashgar, the Taklamakan desert, and the Karakoram highway.

A Windows or Macintosh operating system is required to run the disc, which sells for \$59.95.

The material on the disc was put together by a team of artists, photographers, historians, writers, anthropologists, and musicians, Eleni Tsapralis, of DNA Multimedia, told Newsbytes.

It includes games that let the user do such things as construct a yurt (a traditional type of house found in the region) and take a test of knowledge at the University of Dunhuang.

Other CD-ROM titles from the Vancouver company include Klondike Gold and Everything in Stages.

The Silk Road is now shipping, and can be ordered directly from DNA, Tsapralis said. The company is "currently confirming our major distribution channels," she added.

Contact: DNA Multimedia, Tel: 604-730-0306. Fax: 604-732-7331. Web site: <http://www.dna.bc.ca>



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 2 Year Parts & Service Warranty

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 104-keys Win95 Keyboard, 3 Button Mouse
 2 Year Parts & Service Warranty

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120MHz \$1,255
133MHz \$1,355

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 1.44MB Floppy Drive
 850MB Fast IDE Hard Drive
 PCI Enhanced IDE Controller
 PCI Cirrus Logic 5446 Windows Accelerator with 1MB DRAM(MPEG Playback)
 2 16550 UART Serial, 1 Parallel & 1 Game Port
 14" Non-Int. SVGA Monitor .28mm dp
 Mid-Tower Case with 230W CSA Power Supply
 104-keys Win95 Keyboard, Speakers,Mouse
 Sound Blaster 16 Card,4X Speed CD-ROM
 2 Year Parts & Service Warranty

PENTIUM
75MHz \$1,280
100MHz \$1,345
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133MHz \$1,525

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 PCI S3 Trio 64 Windows Accelerator w/1MB
 2 x 16550 Serial, 1 Parallel & 1 Game Port
 14" Non-Int. SVGA Monitor .28mm dp
 Mid-Tower Case with 230W CSA Power Supply
 104-keys Win95 Keyboard
 Sound Blaster 16 Card,4X Speed CD-ROM
 3 Button Mouse & Stereo Speakers
 2 Year Parts & Service Warranty

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Evans forecasts boom year for PCs in Canada

TORONTO (NB) — This will be another exceptional year for Canadian personal-computer sales, according to Evans Research Corp.

The research firm has also projected continued growth in the sales of magnetic and optical disk drives, and a 12 percent increase in PC distributors' revenues this year.

In its recent report on the Canadian PC market, the research firm projects shipments of PCs in Canada will rise by 11 percent this year, and by nine percent in 1997. This will not match 1995's 15 percent growth in unit sales, however.

According to Evans, 1995's growth was much higher in revenue than in unit terms, due to an 11 percent increase in PC prices.

Albert D'Aoust, associate analyst at Evans, said the home PC market was primarily responsible for this increase, with buyers more likely to buy fully configured multimedia PCs with many extras rather than cheaper, bare-bones systems.

This trend began in 1994 and led to a six percent growth in average PC prices that year, says the report.

The research firm expects the average PC price in Canada will rise again this year, though only by three percent. After 1996, declining component prices will start to push PC prices down again.

PC vendors sold more than 1.65 million units and reaped almost \$3.4 billion in sales in 1995, says the report.

Evans also noted Compaq Canada Inc. moved into first place in terms of units shipped in 1995, matching a feat achieved by its American parent company earlier. NEC Corp. and Digital Equipment Corp. also had

strong years.

Another Evans report just released says Canadian distributors collected \$3.9 billion in revenues from the sale of computers and related products in 1995, and forecasts this figure will rise 12 percent to \$4.4 billion in 1996. Sales to home users are growing fast and mass merchandisers are becoming an

increasingly important channel for PC sales, D'Aoust said.

A third report, on the Canadian storage market, says unit shipments of magnetic and optical drives grew by more than 24 percent in 1995. By the end of 1996, Evans predicted, 2 GB hard-disk drives will become standard equipment on PCs. □

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More Canadians passing their bucks electronically

Having developed a taste for terminal banking with the introduction of the Interac network 12 years ago, the Canadian affinity for debit-card transactions seems quite natural.

Debit cards were first offered in the Ottawa/Hull region in 1990, and in less than six years more than 25 million Canadians have used them to electronically route their cash into retailers' registers.

Here are a few statistics on our electronic banking and spending habits gathered by Tandem Computers:

- In a country with fewer than 30 million people, there are 25.5 million cards in use.
- Canada has 17,133 Interac bank machines and 190,094 merchant direct-payment terminals.
- 5,000 terminals are added to stores each month.
- 419 million debit transactions took place in 1995, of which 51 million were in December.
- Canada has 5.3 Interac bank machines per 100,000 inhabitants, second only to Japan, which has 8.7 bank machines per 100,000 people.
- According to Canadian consumer perception, 36 percent of debit-card transactions take place in a supermarket.
- Frequent debit-card users are overwhelmingly young and female, but there has been no clear link between income or education and use. □

If you're buying notebooks for your company, then ask lots of questions. Questions about features. Questions about price and performance. And questions about quality. Impulse has all the right answers. And they're packaged in the most affordable multimedia notebook on the market today — the COMPUBOOK 650.

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Camp sites

Summer programs offer computing adventures for kids

BY JEAN ALLEN-IKESON

It's that time of the year again. The school bus is parked for the season. So get ready for the great Canadian summertime obsession: summer camp for the kids.

Soccer, swimming, vacation Bible school, nature camps. No doubt, as a true Canadian, you have tried them all. But this summer, let your kids learn about computers and trek through the wilds of the World Wide Web, create multimedia presentations, or animate a cyber-adventure.

The new generation of camps are not kiddie clones of adult word-processing or programming seminars anymore. They offer much more.

Many of the non-profit computer camps are taught by university students who have an almost evangelical zeal for turning their younger counterparts on to technology and computers

Many of the non-profit computer camps are taught by university students, who have an almost evangelical zeal for turning their younger counterparts on to technology and computers.

For veterans of last summer's high-tech camps, there is a new group of advanced camps, such as those offered at McMaster University in Hamilton and British Columbia Institute of Technology (BCIT) in Burnaby. And most camps hold spaces for girls until the last minute to encourage their presence in the world of computing.

The stars of camps for teenagers are Virtual Ventures at Carleton University and Adventures in Engineering Computing at

McMaster. Sadly, the Aventure Virtuelle camp at Hull, for francophones, has been discontinued.

A year ago, it was hoped that these camps would expand to a half-dozen sites across Canada. Then came the various ministers of education for each province who have been snipping away voraciously at university budgets. The result: many institutions seem to be afraid of offering new programs this year, even if they are self-supporting. Virtual Ventures still hopes to launch additional sites next year.

For younger children, some for-profit companies such as TechnoKids and FutureKids offer innovative and creative camps. To find out about non-profit programs not listed here, ask your local library for a resource list, or call your local school board, parks and recreation department, the YMCA or local private schools.

Computer Campion '96 (St. John's)

There are two levels of camp in Memorial University of Newfoundland's program. Level I camps are one-week, full-day camps and are divided into two age groups, 6-10 and 11-13. They include "krazy keyboarding, goofy graphics, desktop publishing perfection, spectacular spreadsheets, wacky word processing and the weird and wonderful Internet." Level II is for returning campers who want more advanced computing, ages 11-13 only. They are treated to "dizzy designs, powerful presentations, cyber-surfing and productive programming." They also offer a "Mad Scientists Academy," art exploration or "circus excitement" camps. Cost is \$95, except for weeks that include a statutory holiday, which cost \$80.

Contact: Division of Continuing Studies, Personal & Professional Development, Memorial University, St. John's. Tel: 709-737-7979.

Summer Sun '96 (Halifax)

These camps are advertised as a way to fast track all levels of users onto the Information Highway. The Internet is the main theme at all three of these camps, held at Halifax's Dalhousie University, along with morph magic and manipulating sound and video clips. Each camper has use of their own computer and beginners may go on to intermediate and advanced camps, all in the same summer. There are three-day camps in July to

mid-August, separate for beginners, intermediate or advanced. The fee of \$125 includes a two-night stay, plus five meals, to encourage attendance from all across the Maritimes. Open to junior-high students.

Contact: Camp Summer Sun, Housing and Services Dept., Dalhousie University, Halifax, N.S. Tel: 902-494-8840. Fax: 902-494-1219. Web site: <http://www.registrar.dal.ca/summer/>

Virtual Ventures (Ottawa)

In its third year of operation, this student-run camp is affiliated with the Faculty of Engineering at Ottawa's Carleton University. Many of the camp's faculty organizers are also affiliated with SchoolNet. As a result, the camp is meaty with programs such as robotics, UNIX, Web page design with HTML and Java, and a scavenger hunt in cyberspace.



managing to attract Bill Gates last year.

One of the less publicized advantages of the program, which is held at the university, is that it helps demystify campus life for teenagers.

If you are an adult and are feeling melancholy because the kids are getting all the "good stuff," then cross out camp and write in "workshop." Virtual Ventures offer special group Internet and HTML programming seminars for adults.

This year it also offers two four-day camps for 6-9 year olds, in addition to the camp for 10-18 year olds. The standard full-day, week-long camp is still \$200. The sessions run the weeks of July 8 through Aug. 26. The four-day junior camp costs \$150 and is held July 2-5 and Aug. 6-9.

Contact: Faculty of Engineering, Carleton University, Ottawa. Tel: 613-520-2600, ext. 1932. Fax: 613-520-5682. E-mail director@vv.carleton.ca. Web site <http://vv.carleton.ca/>

Adventures in Engineering Computing (Hamilton)

Now in its second year of operation, the AdVentures camp is open to students in Grades 9 to 11. It is a non-profit, hands-on program run by students within the Faculty of Engineering.



The main objective of the camp is to throw teenagers kicking and yelling with glee into the new "information-based society." The student instructors, through their creative and innovative workshops, inspire the teen cyborgs, spark their interest, and act as role models. "Learning should not only be educational but FUN as well!" is the unwritten motto of the program.

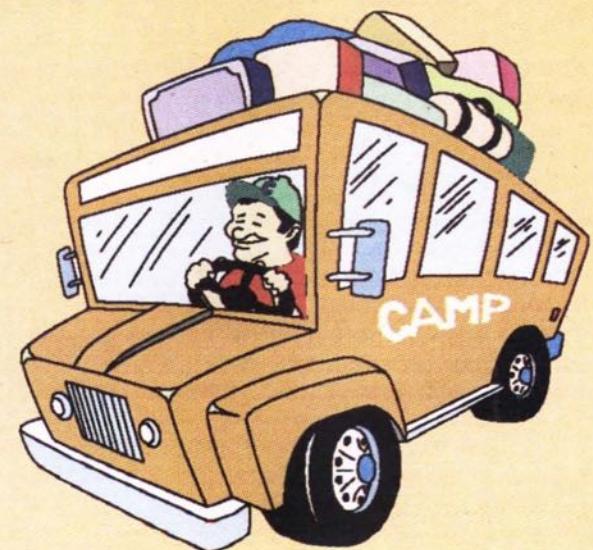


New to the program are two advanced sessions, which will include more in-depth and technical coverage of materials presented in the regular sessions.



Some of the goodies slated for this year are computer-aided machining, in which students use a programming language to design an original logo and then use a computer-driven milling machine to carve their design in plexiglass; an Internet scavenger

Continued on page 20



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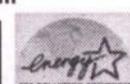
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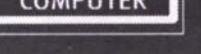
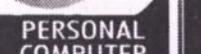
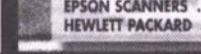
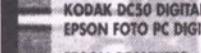
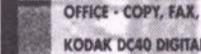
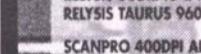
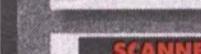
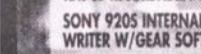
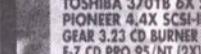
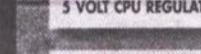
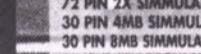
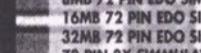
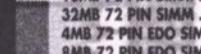
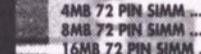
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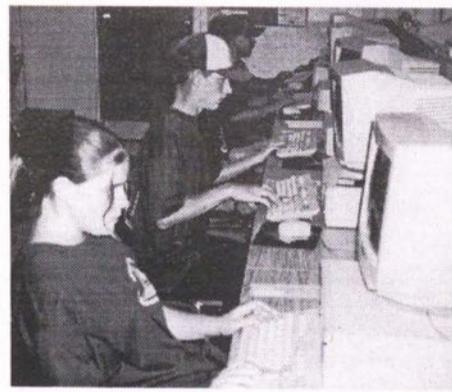
Computer camps for kids

Continued from page 18

hunt; CU-SeeMe technology, which is used to videoconference with other similar programs; and, of course, e-mail, graphics, scanners, programming, networks, virtual reality and the social implications of computer technology. Wow!

All the activities incorporate an engineering perspective that promotes problem solving. This camp is a must for future engineers in the greater Hamilton area. AdVentures has an instructor-student ratio of 1:7.

Regular sessions run the weeks of July 1 through Aug. 5. Advanced sessions run the weeks of Aug. 12 and 19. The \$200 fee includes a T-shirt. Financial assistance is available to a limited number of qualified applicants.



Contact: Carm Vespi, student and alumni liaison officer, Faculty of Engineering, McMaster University Hamilton, Ont. Tel: 905-525-9140, ext 24906. Fax: 905-546-5492.

E-mail: vespi@mcmaster.ca or
aecomp@mcmaster.ca
Web site: <http://aecomp.mcmaster.ca/>

The Mini-University Experience, UofT

The University of Toronto camps' fare is somewhat more academic and combined into "modules." Module A includes computing with law and business. Working with hardware, games, Internet, buying a computer for their own "company," or finding a job as a computer scientist should give kids a glimpse into the future. Module B includes the same computer topics but is shared with camp time on archaeology and physical and health education. Module C combines computing with science and engineering and teaching/the world of education.

All modules are full-day, two-week camps for ages 10-15, running July through mid-August. Cost is \$295-\$325 (the lower rates are for camps that include a statutory holiday).

Contact: Camp U. of T., University of Toronto, Athletic Centre, Tel: 416-978-3436. Fax: 416-978-6978
Web site: <http://www.utoronto.ca/dar/csp/csp.htm>

Micro Computers Plus (Winnipeg)

Campers in this program, held at the University of Manitoba, use both Apple and IBM-compatible computers and spend half of each day on recreational activities.

Campers in the beginner and "advanced" beginner camps, ages 9-12, develop multimedia creations using

Continued on page 22

More computing adventures

The following is a list of some more summer camp sites for kids and teens in British Columbia. —MJ

Computer Camp

**University of British Columbia,
104-6066 Thunderbird Blvd., Vancouver, V6T 1Z3.**

UBC's Community Sport Services offers a series of camps for kids with no computing experience and for those who are ready to develop their own multimedia projects. Beginner campers learn fundamentals such as 'windows,' using a mouse, and file management through projects such as creating greeting cards and writing stories. Advanced II campers delve deeper into Web authoring and will post their own pages at the Community Sport Services Web site. All campers use Macintosh computers.

Age group: Beginner: 6-10, Intermediate, Advanced: 8-13, Advanced II: 9-14

Program: Half-day, week-long camps

Dates: Beginner: July 1 through Aug. 23

Intermediate: July 1 through July 19,

July 29 through Aug. 16

Advanced: July 8 through July 26,

Aug. 5 through Aug. 23

Advanced II: July 22-26, Aug. 19-23

Cost: \$125

Other camps: A variety of sports, recreational, and leadership camps.

Contact: Tel: 604-822-3688 Fax: 604-822-9237

Web site: <http://www.hockey-school.ubc.ca>

ational games, arts and crafts, music or drama complement the programs. The summer programs are co-ed.

Age group: Grades 1-9 (or entering these grades in Sept. '96)

Program Full-day, 9 a.m.-3:30 p.m., week-long programs

Dates: July 1-26

Cost: \$175: Grades 1 & 2

\$185: Grades 3 & 4

\$195: Grades 5-8,

Internet Surf Camp (Grades 6-9), Computer Building (Grades 7-9)

Other camps: St. George's also offers camps in sports, science and nature, technology, and fine and performing arts.

Contact: Tel: 604-224-7740 Fax 224-7066

Day camp Web site:

<http://web20.mindlink.net/wolf/sg/dc.html>

WIZ Zone Summer Classes

WIZ Zone, 5975 West Blvd., Vancouver, V6M 3X1

and 1487 Marine Dr., West Vancouver, V7T 1B8

The theme camps offered by WIZ Zone Computer for Kids Inc. include: Summer Adventures, an exploration of the Internet; Dinosaur Days, a journey through virtual museums and experts to the time of the dinosaurs; Computer Crimebusters, a course for TechnoSleuth wannabes who will take mugshots, scan fingerprints and solve puzzles; and Endangered Rangers, a computer investigation of the Earth's various environments and endangered animals. Most courses are offered for several age groups.

Age groups: Pre-school, 5-6, 7-9, and 10-12

Program: Classes vary in length from 2-3 hours, and 1-5 days in duration.

Contact WIZ Kids for more information.

Other camps: WIZ Zone also offers computing courses for teens, adults and seniors.

Contact: Vancouver, Tel: 604-266-5001

Fax: 604-266-5025

West Vancouver, Tel: 604-925-1440

Fax: 604-925-1777

E-mail (both stores): wizard@wizzone.com

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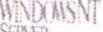
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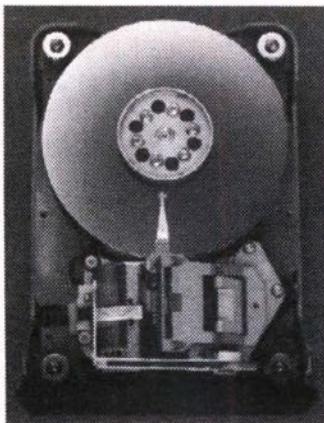
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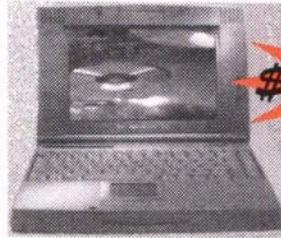
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1.3GB	10ms	3.5" 1" H	Fast ATA-2	256	5,400	ST51270A	\$285.00
1.6GB	10ms	3.5" 1" H	Fast ATA-2	256	5,400	ST31640A	\$406.00
2.1GB	10ms	3.5" 1" H	Fast ATA-2	256	5,400	ST32140A	\$413.00
Seagate 2.5" Drives							
420MB	16ms	2.5" 12.75mm	Fast ATA-2	128	4,500	ST9420AG	\$380.00
810MB	16ms	2.5" 19mm	Fast ATA-2	128	4,500	ST9816AG	\$575.00
Seagate SCSI Drives							
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1.06GB	9ms	3.5" .75" H	Fast SCSI-2	256	5,400	ST31051N	\$500.00
2.15GB	9ms	3.5" 1" H	Fast SCSI-2	512	5,400	ST32151N	\$735.00
4.3GB	9ms	3.5" 1" H	Fast SCSI-2	512	5,411	ST15230N	\$1,380.00
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2.15GB	8ms	3.5" 1" H	Fast SCSI-2	512	7,200	ST32107N	\$840.00
4.3GB	8ms	3.5" HH	Fast SCSI-2	1024	7,200	ST15150N	\$1,480.00
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2.15GB	9ms	3.5" 1" H	Fast Wide SCSI-2	512	5,400	ST32151W	\$820.00
4.3GB	9ms	3.5" HH	Fast Wide SCSI-2	512	5,400	ST15230W	\$1,480.00
4.3GB	8ms	3.5" HH	Fast Wide SCSI-2	1024	7,200	ST15150W	\$1,600.00
9.1GB	11ms	5.25" FH	Fast Wide SCSI-2	1024	5,400	ST410800W	\$3,260.00

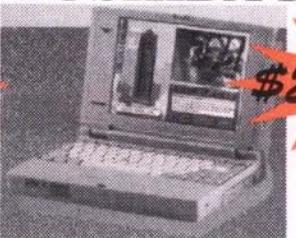
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Megahertz XJ3288T 28.8 Modem + 10BaseT	\$ 5 5 5 . 0 0
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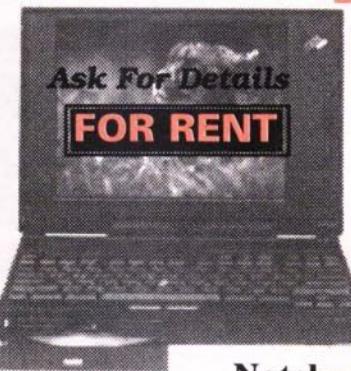
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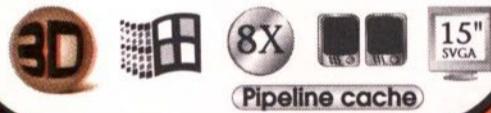
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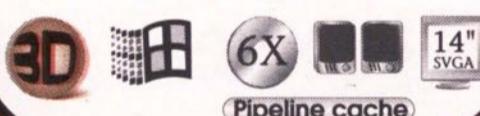
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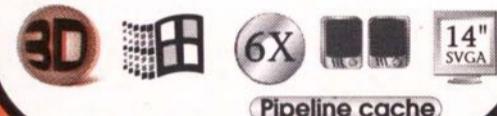
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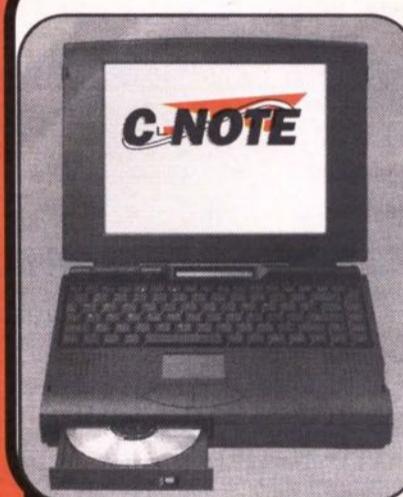
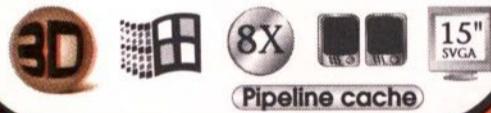
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- Mouse / Enhanced Keyboard
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Graphics WinMark 96 Comparison

Results from Pentium 166 MHz System	
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Diamond Stealth 3D out-performs the competition in 16.7 Million Color mode.

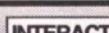
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COMPUTER CAMPS FOR KIDS

Computer camps for kids

Continued from page 20

HyperStudio and are introduced to the Internet.

Intermediate and advanced cyberkids, ages 10-15, learn word processing, graphics, how to use "micros" as an organizational tool, programming, Web page creation, and how to search the Net. Full-day, two-week camps, which run through July and August, cost \$200 to \$225 depending upon the session.

Contact: Joyce Fromson, director of Mini-University, University of Manitoba. Tel: 204-474-9143. Web site: <http://www.umanitoba.ca/faculties/education/edlab/camp/>

Compacamp (Saskatoon)

Billed as Saskatoon's only computer camp, it is in its third year of operation at the Meewasin Valley United Church. This program is unique because it is a Windows 95-based camp.

Each child is assigned their own 486 or Pentium computer. The Internet is included

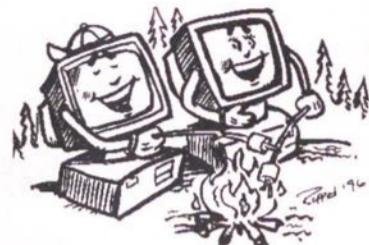
in every session, in addition to sports, swimming and crafts for all but the programming and multimedia camps.

The Internet camp—four glorious days of surfing the Internet, downloading games, using e-mail and designing a home page—runs from July 2-5 for ages 9-14. The Internet session, for ages 12-14, runs Aug. 6-9. Each Internet camp costs a modest \$100.

The beginner and intermediate camps for ages 9-11 run the weeks of July 8 and 22. The beginner camp is a basic introduction to computers, while the intermediate camp includes

Microsoft Works and Basic programming. For ages 12-14, there are similar but more age-appropriate beginner and intermediate camps offered the weeks of July 15 and 29. The cost for each of these camps is \$125.

The programming camp for ages 9-14 offers a week of structured programming in which the camper uses Microsoft Basic to develop a computer game. This is just what my 10-year old is looking for! This camp costs \$125.



Advanced Multimedia runs the week of Aug. 19, and shows kids 9-14 how to program using multimedia techniques. It costs \$125.

There are also four Compucamps for adults! Each costs \$60 and covers basic topics such as word processing and Windows 95.

Contact: Robert Meldrum, e-mail: a938@sfn.sask.sk.ca Web site: <http://www.sfn.saskatoon.sk.ca/rel/unit-meewasin/index10.html>

Surfing the Net

This is the University of Regina's first foray into computer camps. As the name implies, the camp will introduce kids, ages 8-13, to the World Wide Web and will teach them how to design a home page.

The camps are half days (mornings), for two weeks, with three different sessions available. As they are organized by the Faculty of Physical Activities, an afternoon sports camp can be taken simultaneously.

Contact: John or Mindy, Faculty of Physical Activities Studies, University of Regina. Tel: 306-585-4371. Fax: 306-585-4854.

Summer Computer Camp (Calgary)

Wow, someone has really gone to work on Calgary's offerings over the past year. Originally a collection of rather dreary sounding camps in introductory subjects or programming, this year's schedule has something for every computer-addicted kid from ages 4-16.

Notables programs for ages 8-12 are Creating Storybooks and Doing Animation, and Junior Publishers. Teenagers are treated to Internet camps, creating animation or multimedia with HyperStudio scripts, or my favorite, Journey to the Centre of the Computer.

In the latter camp, kids will learn about simple electronics, digital information and how computers use it, what goes on inside the central processing unit, how to write simple programs, how to build simple computer circuits and an exploration of the guts of a computer. This camp is two nights a week for two weeks, while the other camps are half days for one week.

Kids can take a morning and an afternoon camp, on different topics, simultaneously or paired with a recreational activity for pre-teens. The age groups for the various camps are 4-7, 8-12, or 13-16. Most sessions are a modest \$89 each.

Contact: University of Calgary, Tel: 403-220-2866. Fax: 403-289-7287 Web site: <http://www.ucalgary.ca/UofC/faculties/CTED>

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Kids Kamp '96 (Burnaby)

Located at BCIT, in Burnaby, B.C., Kids Kamp is in its second year of operation. Like the AdVentures program, an advanced camp is also being offered this year to entice teenagers back for a second round. These are two-week camps so they can offer more in-depth coverage.

The emphasis in the regular sessions is on the Internet, videoconferencing, multimedia design, video editing and morphing. The advanced camps cover some of the same topics but add Adobe Photoshop and Adobe Premiere. Both explore Web page design with HTML and Java.

The regular sessions are for ages 12-15, and the advanced for ages 13-16. The full-day, two-week camps cost \$409 each.

Contact: Terri Carde, Tel: 604-451-7032.
Or Laura Davie, Tel: 604-432-8614.

Fun With Computers (Burnaby)

From the Department of Recreational Services and Athletics, Simon Fraser University, in Burnaby, this two-week, full-day camp features four hours of computing and two hours of recreation (sports or crafts) each day.

Programming, multimedia presentations, word processing, databases, simulation spreadsheets, graphics and animation are covered, and each camper is assigned their own Macintosh computer.

This camp, for ages 8-14, is divided into two levels, depending on the child's previous experience. The same programs are used, but the content and speed of presentation is accelerated for the advanced group.

Two-week sessions begin July 2 and run through the week of Aug. 23. The cost is \$260 to \$270 (the cost is reduced for sessions that include a statutory holiday).

Contact: Summer Camps, Dept. of Recreational Services & Athletics, Simon Fraser University, Vancouver. Tel: 604-291-3675. Fax: 604-291-4922.

Commercial camps**Camp Imagine-Ere**

This is definitely something different. Camp Imagine-Ere is a bilingual computer/circus camp situated in Escuminac, between Campbellton, N.B., and Carleton on the Quebec side of Chaleur Bay.



Imagine-Ere offers two camp formats: a day camp for local kids, and a "stay-over" camp that includes all food and activities. Campers attend for a minimum of one week, but two or more are recommended.

The camp is in a farm setting with animals and includes computer activities, circus arts and sports.

Imagine-Ere partner Huguette Allen, who organized the computer portion of this camp, ran the John Abbott College Computer Camp from 1986-1992 in Sainte Anne-de-Bellevue. An instructor from the Montreal National Circus School runs the circus activities, which are billed as "unforgettable."

Camps run the weeks of July 2 through Aug. 12. The first week is reserved for ages 14 and older, after which sessions are open to ages 8 and up. Campers are separated into



three age groups. The day camp is \$165 per week; overnight camp is \$265 per week.

Contact: Camp Imagine-Ere, Tel/Fax: 418-788-2804. E-mail: camp@quebectel.com WEB site: http://www.arena.com/~Imagine-Ere

FutureKids Computer Learning Centres

FutureKids is the McDonalds of computer camps, with over 1,500 locations in 40 countries.

FutureKids boasts 20 locations across Canada, including Richmond and Victoria,

B.C., Calgary, Edmonton and St. Albert, Alta., Winnipeg, Man., two in the Toronto area, Kirkland Lake, Richmond Hill, Sudbury, Unionville, Mississauga, Sudbury, Oakville, Pickering, and Willowdale, Ont., a location in Montreal, and Bedford and Sydney, N.S. The FutureKids Web site provides e-mail links to all of the Canadian franchises.

FutureKids programs are well planned and tested to keep kids interested and learning. One camp called Multimedia Director should

Continued on page 28

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Spring Comdex focuses on Internet, intranet

BY JEFF EVANS

CHICAGO—The 10th Annual Spring Comdex show at Chicago's McCormick Centre, on the shores of Lake Michigan, marked the continuing shift of the computer industry's focus towards the Internet. This year's show ran June 3-6.

Paul Moritz, Microsoft's head of communications software development, outlined the shifts his company is making in his keynote speech on the second day of the show.

Moritz said Microsoft is moving towards an environment where PC users will be able

to move seamlessly from browsing the contents of their computer's hard drive, to the resources of any local network they may be attached to, and on to any larger-scale business or educational intranet they are a part of, as well as to the public Internet and the

World Wide Web.

This notion of all computers being part of an infinitely expanding world-network was a common theme throughout the show. IBM/Lotus exhibited their own new products for enabling workgroups and messaging, and Novell was pushing its latest version of NetWare.

Two in one

This year's Comdex was divided into two sets of exhibits, one in the main Comdex section, the other, Windows World, in another hall. The distinction between the two was mostly arbitrary, since the MS Windows operating system, in all its varieties, was pervasive.

To prove the MS monopoly was not complete, however, Apple had a substantial presence, showing the latest models of Power Macs, Powerbooks, Newtons, and its popular Web authoring and server solutions.

Apple's new Pippin Internet appliance/multimedia player technology was on view, in the form of a system from the Japanese manufacturer, Bandai, which is to ship in the United States in the fall.

Canada was well represented at the show. Ottawa-based Corel Corp., which in recent years had often avoided exhibiting directly at Comdex (preferring instead to rent space in a hotel near Comdex, and hold their own independent event), had a large booth that was very well attended.

Canadian club

Featured were Corel's new Corel WordPerfect Suite 7 and Corel Office Professional 7. Corel also announced its plans for the Mac version of CorelDRAW 6, Corel Click&Create, Corel Ventura 7, and the Corel Web Graphics Suite at a press conference on the first day of the show.

Corel's new office software suite is aimed directly against the industry-leading Microsoft Office. Corel hopes to leverage the enormous and loyal installed base of WordPerfect users to aid it in gaining market share in the office suite market.

In terms of cool, fun new products, Comdex had some notable innovations: one of the best was from Canada's ATI Inc., which showed its hot new 3DXpression graphics accelerator, with an optional TV tuner/framegrabber. California-based MetaTools released Goo, a graphics utility that allows amazing, real-time distortions of digital images on any PC.

Party on

At one of the best Comdex Chicago parties, at the aptly named nightclub called Drink, MetaTools showed Goo running on a PC that was hooked up to a video camera and Play Inc.'s Snappy video digitizer. Guests had their image "snapped" (digitized) and loaded into Goo, where great indignities were wrought on their faces, to general amusement.

Although there were no really earth-shattering new products on the order of the Power Mac or Windows 95 announced, Comdex Spring '96 featured literally hundreds of new products that, in sum, show the rapid movement of the industry towards a high-velocity, wired world that will be very different from the one in which we now live. □

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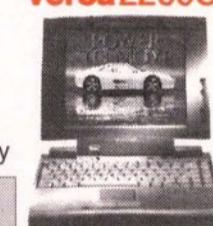


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Versa 6030H - P133 / 16MB / 1.3GB 12.1" Active 6X CD \$8340
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AST

Ascentia J10 - P75 / 8MB / 500MB 10.4" DualScan \$3039
Ascentia J10 - P75 / 8MB / 800MB 10.4" DualScan \$3420
Ascentia J30 - P100 / 8MB / 800MB 10.4" Active \$4175
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 P/I-P55TP4N 75-166Mhz PB256K (430FX) \$228

GIGABYTE

GA-486AL PCI 256K Cache \$129
 GA-586ATS 75-200Mhz PB256K Flash PnP \$189



Endeavor-II 75-166Mhz PB256K Flash PnP \$318
 Atlantis 75-150Mhz SB16bit 1MB Video PB256K \$459

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Titan III (S1468) 75-200Mhz PB256K Triton \$238
 Tomcat I (S1562) 75-200Mhz PB256K Triton 2 \$295
 Tomcat II (S1562D) 75-200Mhz PB256K. Dual Pentium \$495

VISION

Pentium 586 PB256k. Cache Flash PnP \$165

CPU & MEMORY



Pentium Pro P200 MHz \$Call
 Pentium P150 / P166 MHz \$530/715
 Pentium P120 / P133 MHz \$279/389
 Pentium P75 / P100 MHz \$159/215

AMD

DX4-100 / DX4-120 / DX4-133 (3.3v) \$65/75/85

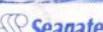
CYRIX

5x86-120 / 5x86-133 MHz (486) \$105/135
 6x86-P120+ / 6x86-P133+ (Pentium) \$Call
 6x86-P150+ / 6x86-P166+ (Pentium) \$Call

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 16MB 72 pin 70ns / EDO 16MB 72 pin 60ns \$Call
 32MB 72 pin 70ns / EDO 32MB 72 pin 60ns \$Call

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 ST31640A 1.6GB / ST32140A 2.1GB \$365/420

SCSI
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 ST32430N 2.0GB / ST32430W Wide 2.0GB (H) \$849/925

ST32550N 2.0GB / ST32550W Wide 2.0GB (B) \$1015/1095
 ST15230N 4.0GB / ST15230W Wide 4.0GB (H) \$1349/1445
 ST15150N 4.0GB / ST15150W Wide 4.0GB (B) \$1679/1767
 ST410800N 9GB / ST410800W Wide 9GB \$3100/3185

Quantum

EIDE
 QUFB1280A Fireball 1.2GB \$309
 QUSC1700A Sirocco 1.7GB \$368
 QUSC2550A Sirocco 2.5GB \$485
SCSI
 QUFB1280S Fireball 1.2GB \$415
 VP32210 Capella 2.1GB / 2.1GB Wide \$905/975
 XP34301 Grand Prix 4.3GB / 4.3GB Wide \$1278/1295
 XP34300 Atlas 4.3GB / 4.3GB Wide \$1355/1430

IBM

IBM (OEM) DJAA-31700 1.7GB \$335

Maxtor

71084A 1.08G / 71260A 1.2G \$258/279
 71262A 1.6GB / 721626A 2.0G \$335/395



W.D. AC21000 1.2G / AC31600 1.6G \$285/335
 W.D. AC32100 2.1G / AC32500 2.5G \$435/510

REMOVABLE STORAGE/REWIRABLE OPTICAL DRIVE



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 Zip Disks 100MB Single 10 Pack \$22/199
Jaz Drive 1GB SCSI Int./Ext. (12ms 6.62MB/sec) \$670/788*

Jaz Disks 1GB Single / 5 Pack \$145/628



SureStore CD-Writer 4020 \$1,345
 SureStore CD-Writer Media 10PK \$168

SYQUEST

EZ135 135MB Ext. Parallel (13ms 1.0MB/sec) \$315
 EZ135 135MB Ext. SCSI (13ms 2.4MB/sec) \$278
 EZ135 135MB Disks \$34

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T1000 800MB Travan w/tape Int. / Ext. \$225/258
 Jumbo 1400 1.4GB Int. \$294
 TAPE 3M TR-1 400MB/MC3000XL \$39/39
 TAPE 3M TR-3 1.6GB \$49
 Powertape 2.4GB Int. / Ext. \$1370/1580

CONNEX

Tape Stor Travan 800MB w/tape Int. / Ext. \$235/388
 Tape Stor Travan 3200MB w/tape Int. \$415
 Tape Stor Travan 8000MB Call
 DAT 2-4GB SCSI Int. (4320RT) / Ext. (4350XT) \$987/1140
 DAT 4-8GB SCSI Int. (4326RP) / Ext. (4356XP) \$1350/1495

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Ditto Easy 800MB Int. / Ext. \$218/228
 Ditto 3200 3.2GB Int. / Ext. \$325/475

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Winboost M64 1(Exp.) / 2MB DRAM \$139/169
 Winboost M64 Video 2MB DRAM \$199
 Winturbo M64 2M / 4MB VRAM \$319/579
 Graphic Pro Turbo 2M / 4MB VRAM \$375/589

MATROX

Stealth64 3D 2000 2MB (EDO) DRAM (New!!) \$195
 Stealth64D Video 2121-1M / 2201-2M (EDO) \$139/215
 Stealth64D Video 2121TV-1M / 2201TV-2M \$325/385
 Hardware MPEG / TV Tuner (for TV Series) \$165/165
 Stealth64 Video 3200 2MB VRAM \$335
 Stealth64 Video 3240-2M / 3400-4M VRAM \$365/585

TRIDENT

PCI 9440 1M / 9680(64bit) MPEG 1MB \$59/79

CIRRUS LOGIC

PCI 5446 MPEG 64bit 1MB \$79

MODEM



Lifestyle 28.8 V.34 w/fax & caller ID Int. / Ext. \$220/235
 Power 28.8 V.34 w/fax & caller ID flash ROM Int. \$279/315
 BitSURFR pro ISDN terminal adapter \$395

HEYES

Accura 28.8 V.34 w/fax Int. / Ext. \$248/278
 Optima 28.8 V.34 w/fax Int. / Ext. \$248/278

CARDINAL

MVP 28.8 V.34 w/fax Int. / Ext. \$193/225
 MVP 28.8 V.34 w/fax & voice Int. / Ext. \$235/275

SUPRA

SupraExpress 28.8 V.34 w/fax Int. / Ext. \$179/225
 SupraExpress 28.8 V.34 w/fax & voice Int. \$179
 SupraFax 28.8 V.34 w/fax & caller ID flash Int. / Ext. \$259/298

US Robotics

Sportster 14.4 V.42 w/fax Int. / Ext. \$128/155
 Sportster 28.8 V.34 Win Modem Int. \$189
 Sportster 28.8 V.34 w/fax PnP Int. / Ext. \$229/258
 Sportster VI 28.8 V.34 w/fax & voice Int. / Ext. \$239/275
 Sportster VI DSVD 28.8 V.34 w/fax & voice Int. \$375
Sportster Voice Mail 28.8 V.34 w/Full Duplex
 Speakerphone, Call ID, Smart Ring Int. / Ext. \$259/289
 Courier V. Anything Fax Int. / Ext. \$478/510
 Sportster/Courier ISDN 128k Int. \$589/720

PRINTER



Laser Jet WL 660 / HL 660 600dpi \$610/658
 Laser Jet HL-1260dpi \$1,440

Canon

DeskJet BJ30 Black / BJC70 Color \$288/469
 DeskJet BJC210 Color / BJC 4100 Color \$266/389
 LaserJet LBP460 600dpi \$479

EPSON

DeskJet Stylus Color IIS / Stylus Color II \$268/379
 DeskJet Stylus Pro / Stylus Pro XL \$665/2350

HEWLETT PACKARD

DeskJet 600 / 680C \$359/457
 DeskJet 820Cx/850C \$549/679
 LaserJet 5L 600dpi 1MB \$649
 LaserJet 5P 600dpi \$1,230
 LaserJet 5MP 600dpi 6ppm \$1,485

LaserJet 5 600dpi 12ppm \$1,830
 LaserJet 5N 600dpi 12ppm 6MB P.S. \$2,130
 LaserJet 5M \$2,489

Raven

Dot Matrix 2405 24pin \$245
 LaserJet LP1030 \$1,440

SCANNERS



ScanJet 4C w/Photopaint \$1,325

EPSON

PhotoPC Digital Camera (New!!) \$679
 ES10000 Flatbed Color w/Photoshop LE \$1,050
 ES12000 Flatbed Color w/o/Software \$1,349
 ES12000 Pro Flatbed Color w/Photoshop Full \$1,590

CONNECTIX

QuickCam (Black & White), Free Microphone \$148

MONITOR



MicroScan 4V 15" .28mm N.I.L.R. \$529
 MicroScan 5V 17" .28mm N.I.L.R. \$899
 MicroScan 17X 17" .28mm N.I.L.R. Rotatable \$1,270



DX1595 15" / DX15T 15" .26mm 1280x1024 \$510/625
 DX1795 17" / DX17T 17" .26mm 1280x1024 \$935/1050

SONY

Multiscan 15SX 15" / 15SFII 15" .25mm \$589/670

Multiscan 17SFII 17" / 17SEII 17" .25mm \$1,195/1540



Diamond Scan 15HX 15" .28mm \$619
 Diamond Pro 17TX 17" .25mm \$1,590
 Diamond Pro 21TX 21" .30mm \$2,630

VIEWSONIC

ViewSonic 15GS 15" / 15GA 15" .26mm \$655/720
 ViewSonic 17G 17" / 17GA 17" .26mm \$1,015/1,110
 ViewSonic 21PS 21" \$2,350



NEC 15XV+ / 15XE .28mm \$678/786
 NEC 17XV+ / 17XE .28mm \$1,158/1,448
 NEC C500 15" / M500 15" .25mm (New) \$550/810
 NEC M700 17" .25mm (New) \$1,227

NANAO

Flexscan T2-17TS 17" .25mm \$1,540
 Flexscan T2-20TS 20" .25mm \$Call
 Flexscan FX-21" \$4389



Goldstar GS2010 20" 1600x1280 \$1,520

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CompuPartner 14" / 15" .28mm N.I.L.R. \$335/465

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SoundBlaster 16 / PnP Version \$98/118
 SoundBlaster 16 SCSI-2 \$175
SoundBlaster 32 PnP \$205

SoundBlaster AWE32 PnP (Full) \$325
 Performance 6X(32 bit SoundCard) Kit \$498
 VideoBlaster MP400 full screen/full Video \$398
 3D Blaster PnP Game Card(2MB w/Game) \$465

ADVANCED GRAVIS

Team Sports Set(Multi-Player Game System) \$139

CD-ROM



Pioneer DR2111 4X Int. EIDE \$65



GoldStar GCD-R580B 8X EIDE Int. \$185

Panasonic

</div

COMPUTER CAMPS FOR KIDS

Computer camps for kids

Continued from page 23

tie in nicely with the "create your own multimedia story/movie/game" software that is now widely available for children.

Campers create a computerized storyboard and learn the basics of music on a computer. They edit video clips and scan in pictures for a multimedia presentation.

Other camps, for ages 8-14, explore robotics, mysteries, or teach campers how to create and market their own companies. Younger children explore "megabyte zoo," invent a new toy or game on the computer, immerse themselves in Disney cartoons, or go on a

world adventure via the computer.

FutureKids has programs for ages 4-14. Expect to pay about \$150 for a one-week, half-day camp.

Contact: Check local phone listings for FutureKids.
Web site:
<http://www.futurekids.com>

TechnoKids

TechnoKids is an Ontario franchise with outlets in Oakville, Mississauga, Scarborough and



Barrie. The summer camp programs are one-week, full-day sessions from July 2 to Aug. 30, for ages 7-12.

Each day of the week centres around a theme such as TechnoCop, TechnoReporter or TechnoSpace. Activities are carefully designed and tested. The first day is TechnoQuest and includes Internet "travel" and sending "electronic post cards." The last day is on robotics using Logo, which is built and programmed by computer. All projects are hands-on with a low camper to instructor ratio. The cost for the one-week camp is \$199. □

Contact: TechnoKids, check local phone listings.
E-mail: Mississauga: technomi@inforamp.net

Oakville: technokid@inforamp.net
Scarborough: t+@altcom.net
Barrie: technok@barinto.on.ca



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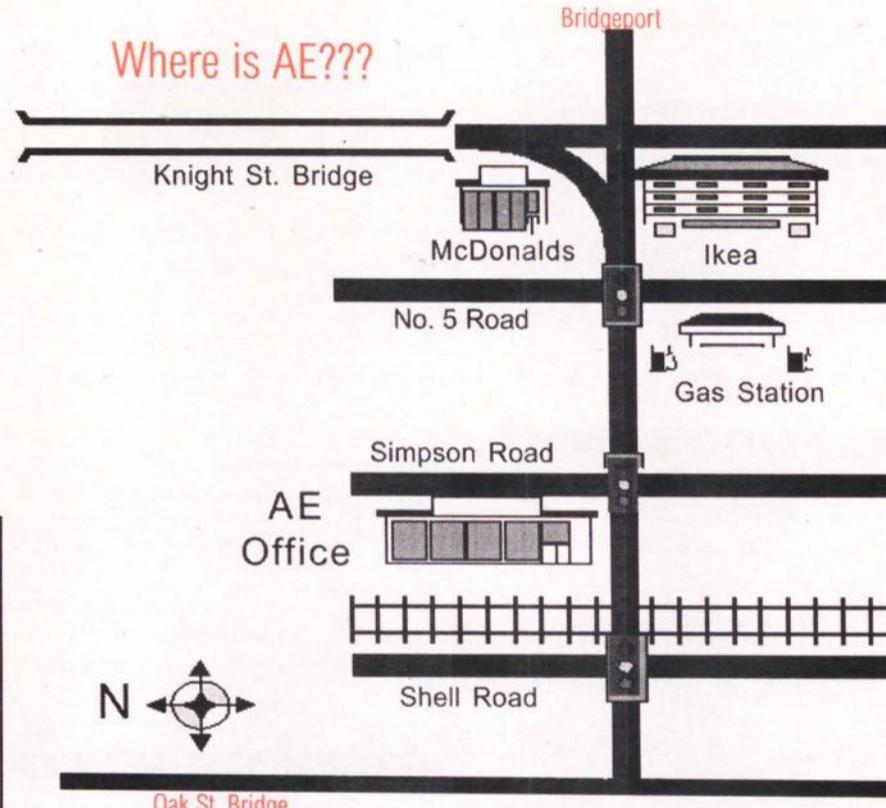


Network Software & Kits

Microsoft Windows '95 Upgrade/Full Version	\$129/265
Microsoft Windows NT v3.51 Workstation	395
Microsoft Windows NT v3.51 Server	895
Netware v4.1 (5/10/25/50/100)	call
Ethernet Hardware Kit (2cards, 2 terminators, 25' coax)	\$125
Lantastic AI v6.0 Starter Kit (complete setup for 2 node)	370
Lantastic AI v6.0 Add-on Kit (complete setup for 1 node)	95
GVC NE2000 16-bit Ethernet Adapter (BNC/10BT)	\$55
Intel EtherExpress Pro/10 Ethernet card (10BT)	135
3Com 3C509 Etherlink IIb Ethernet Card (10BT/10B2)	175
Allied Telesyn MR-820TR Unmanaged 8-port Hub	180
3Com LinkBuilder TP/8 Unmanaged 8-port Hub	289
3Com LinkBuilder TP/12 Unmanaged 12-port Hub	469

*call for custom length cable both coax (RG58) & twisted pair (RJ-45)

Where is AE???



Price may change without notice. All prices FOB Richmond. Insurance extra. Advertised prices are cash, add 2% for credit card orders.

Motherboard & RAM

ASUS SP3 AMD486DX4-100MHz PCI/VLB MB, 256k, IDEIO	\$249
ASUS T2P4 P-75MHz PCI MB, 256k PB cache, IDEIO	415
ASUS T2P4 P-100MHz PCI MB, 256k PB cache, IDEIO	470
ASUS T2P4 P-120MHz PCI MB, 256k PB cache, IDEIO	555
ASUS T2P4 P-133MHz PCI MB, 256k PB cache, IDEIO	660
ASUS T2P4 P-150MHz PCI MB, 256k PB cache, IDEIO	815
ASUS T2P4 P-166MHz PCI MB, 256k PB cache, IDEIO	1015
ASUS T2P4 Pentium PCI MB (no CPU), 256k PB cache, IDEIO	59
ASUS Pentium Pro 200MHz PCI MB, 256k, IDEIO	\$1995
486 CPU Heatsink / Pentium Heatsink	
9/15	
1MB/4MB SIMM-70ns (30pin)	25/65
4MB/8MB/16MB SIMM-60ns (72pin) w/o Parity	55/95/179
4MB/8MB/16MB SIMM (72pin) EDO Memory	59/99/189

*Please call on all Ram prices

Monitor, Video Card

Daytek 14" SVGA Monitor, 28mm dp NI	\$319
Daytek 1536 15" SVGA Monitor, 28mm dp, NI, EStar	419
Daytek 1531 15" SVGA Monitor, 28mm dp, NI, EStar	469
Daytek 1730 17" SVGA Monitor, 28mm dp, NI, EStar	840
Daytek 2102 21" SVGA Monitor, 28mm dp, NI, EStar	1975
ADI 4V 15" SVGA Monitor, 28mm dp, NI, EStar	529
ADI 5V 17" SVGA Monitor, 28mm dp, NI, EStar	935
Sony 15sx 15" SVGA Monitor, 25mm dp, NI, EStar	619
Sony 15sf 15" SVGA Monitor, 25mm dp, NI, EStar	695
Sony 17sf 17" SVGA Monitor, 25mm dp, NI, EStar	1315
ATI Mach32 Accelerator w/1MB (ISA/ VLB)	115
Cirrus Logic 5446 PCI Accelerator w/1MB	95
ATI WinBoost PCI Accelerator w/2MB Dram	169
ATI Video Xpression PCI Accelerator w/2MB Dram	189
ATI WinTurbo PCI Accelerator w/2MB/4MB Vram	325/525
Matrox Millenium 3D PCI Accelerator w/2MB Wram	375

Modem, Mice, Scanner

USR Sportster 14.4 v32bis Internal Fax/Modem	\$135
USR Sportster WinModem 28.8 Int Fax/Modem	198
USR Sportster 28.8 Fax/Modem (Int/Ext)	235/259
USR Sportster Voice 28.8 Voice/Fax/Modem(Int/Ext)	259/295
USR Sportster 28.8 v.34 PCMCIA Fax/Modem	395
USR Courier 28.8 v.Everything External Fax/Modem	539
MS Compatible 3-button Serial Mouse	20
Logitech Mouseman (Serial/Bus)	75/95
Logitech Trackman Marble	
Microsoft Mouse v2.0 Serial/Bus)	125
Logitech Scanman Easytough (Parallel)	85/115
Logitech Scanman Colour Handheld	165
Logitech Pagescan Colour Sheetfed Scanner	275
HP ScanJet 4P Personal Grey-Scale Scanner	539
HP ScanJet 4P Personal Colour Scanner	429
HP ScanJet 4C Full Page Colour Scanner	719
HP ScanJet 4C Full Page Colour Scanner	1389

CD-ROM & Others

Toshiba QuadSpin IDE CD-Rom Drive	\$79
Toshiba 6X IDE CD-Rom Drive	99
Toshiba 8X IDE CD-Rom Drive	189
Toshiba XM-3701 6.7X SCSI-2 CD-Rom Drive	349
SoundBlaster 16 PNP Sound Card (OEM)	115
Multimedia Stereo Speakers, 45Watts	50
Sony CSS-B100 Speaker Set	79
Panasonic 1.44MB 3.5" Floppy Drive / with frame	\$35/40
Fujitsu KB-8725 Keyboard, 104 Win '95	35
Fujitsu KB-4725 Keyboard, 101 Key (Heavy Duty)	59
MS "Natural" Keyboard, 104 Key Ergonomic	99
Focus 2001/2 Keyboard, 101 Key Enhanced	55
APC Personal SurgeArrest Strip w/Tel	45
APC Professional SurgeArrest Strip w/Tel	65
APC Back-UPS 280/400/450/600VA	145/199/250/329
APC Back-UPS Pro 280/420/650VA Win'95 Ready	199/329/399

Tape, Case, Power

Colorado Travan T1000 Tape Backup Drive (800MB Max.)	\$219
Colorado Travan T1000 Parallel Backup (800MB Max.)	259
Colorado Travan T4000 SCSI Backup (4GB)	529
HP SureStore 2GB Internal 4MM DAT Drive	895
HP SureStore 2/4GB Internal 4MM DAT Drive	995
HP SureStore 4/8GB Internal 4MM DAT Drive	1175
*call for External drives & special configurations	
3M DC2120 tape cartridge 120MB capacity	\$20
3M DC2120XL Tapes, (350MB Max.)	25
3M MC3000XL Tapes, (1.4GB Max.)	45
3M TR-1 Travan Tapes (800MB Max.)	45
3M DG90M 4MM DAT Tapes	20
Mini-size 13" tower or Desktop w/200W PS	45
Mid-size 19" tower case w/200W PS	20
Full-size 25" tower case w/250W PS	95
Full-size 27" tower case w/300W PS 2 fans, wheels	125

Systems come with the following:	\$30/40
Intel CPU, Asus motherboard, 256k PB cache;	35
16MB of EDO Ram, WD 1.2GB EIDE HD; 1.44MB Floppy;	59
CL 5446 SVGA PCI Card w/1MB;	99
Mid Size 19" Tower Case w/250W PS;	55
Fujitsu KB-8725 Keyboard, MS Serial Mouse, MS Windows '95	45
24 hr burn in, 2 years parts and labour warranty	65
Just choose a monitor and you're ready to go	145/199/250/329

IOmega Zip Drives

100MB Parallel

\$269

IOmega 100MB

Disks

\$19.95ea

Accpac

Windowing system	\$139
General Ledger	619
Accounts Receivable	619
Accounts Payable	619
Lanpak users 4 user	379
Order Entry	619
Inventory Control	619
Job Costing	619

Printers & Accessories

Canon BJ-C210 Colour Inkjet Printer	\$289
HP DeskJet 600c Colour Inkjet Printer	529
HP DeskJet 680c Colour Inkjet Printer	895
HP DeskJet 820cx Colour Windows Printer	995
HP LaserJet 5L 1MB 4ppm, 600dpi	1175
HP LaserJet 5P 2MB/5MP PS, 3MB, 6ppm, 600dpi	1245/1455
*HP toner & inkjet cartridges available	1825/2495
Lexmark Optra E 1MB, 6ppm, 600dp	25
Lexmark Optra R+ 1MB, 16ppm, 1200dpi	45
Lexmark WinWriter 150c Colour Windows Printer	20
*Ask about Lexmark's Educational Program	95
Printer Auto Switchboxes 2:1/4:1	125
Raven & Okidata Dot Matrix Printers available, ask for pricing	165

Computer Systems

Pentium-75MHz PCI/ISA Computer System	\$1325

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Business class

Twenty-one that travel

BY CHRIS FISHER AND STEVE HALINDA

- AST Ascentia P30
- Dell Latitude LM P-100SD
- Eurocom 5400T
- Hyperdata 773
- IBM ThinkPad 755cx
- Impulse Reply 250 and CompuBook 650
- IPC OpenNote MX 5100, 5120T and 575T
- NEC Versa 2200C and 4000D
- Panasonic CF-41 and MK3
- Apple PowerBook 5300cs
- Sharp PC 9000 and HZ3070
- Pacific Royal Jetbook CD5 and Jetbook XP6
- Texas Instruments Extensa 560CDT
- Toshiba 410CDT and Tecra 700CT

Here they are! These desktop killers are lean, mean, feature-rich, optimized, fighting machines, the kinds of notebooks many of us only dream of owning.

We've chosen to discuss them under the umbrella of "business-class" notebooks, but as market forces squash prices and add more functionality to the machines, it's difficult to gauge where they fall. The line between an entry-level value notebook and a business class one is becoming somewhat blurred. Desktop 486 class-machines are dead and gone, and in the notebook arena, 486s are already end-of-the-line items.

Entry-level seems to entail a Pentium 75 MHz processor, and not many vendors would ship a notebook with anything less than 8 MB of RAM. This month we look a short distance beyond the entry class, at 75 to 120 MHz-based Pentium digital companions. We managed to restrain ourselves from venturing too far into "massive performance" territory, despite offers from several vendors eager to show off their latest wares.

Still, the specification sheets on these notebook machines read like those of fully configured entry-level desktop machines. Some of these gems even produce scores comparable with many desktops with faster processors.

Looking at this month's crop of notebooks, it is evident that one part of their design has undergone a major change. Notebook vendors seem to have, for the most part, dumped track balls and trackpoints and incorporated touchpad technology into the machines. Apple and NEC were some of the earlier adopters of the touchpad, and it seems that much of the rest of the industry has been persuaded by this technology.

The beauty of the touchpad is that it allows you to take control of the pointer with one finger through a single interface, sliding it across the pad and tapping to execute commands. Other pointing devices require a certain amount of finger contortion in the form of movement from the pointer control to the button. We have seen a number of implementations of pointers that require users to have motor control in their

fingers akin to a musician's.

Touchpads, however, are not all created equal. While the ones in this survey, for the most part, seem to be responsive and smooth to operate, we have seen examples in the past which didn't function to our expectations (ironically including the non-tappable touchpad in Apple's 5300-series portables).

Moreover, the pointing device is an item of personal preference. Personally, I have been wooed by the touchpad, like the familiarity of the trackball, and enjoy the extra design space that an eraser-head trackpoint implementation affords. Still, if I'm using a notebook for any length of time, I'm still tempted to rip a mouse off my desktop computer and use it rather than the default offering. Give me a full-blown mouse any day of the week.

Another progression in notebooks is the inclusion of CD-ROM drives on many more machines. The lower price of the drives seem to have spilled over into the notebook markets, enabling them to be sold with systems and as after-market additions without significantly moving the price point. These aren't the 2x CD-ROM drives that we were looking at only a few short months ago: we are beginning to see 4x and even 6x drives.

The hard drives on these business-class portables have also increased in size dramatically since our last visit to this product area. Notebooks seemed to embrace 240 MB and 500 MB hard drives well after they faded out of the desktop scene—not these notebooks. They are equipped with 800 MB and even 1 GB+ hard disks—big enough to store a wealth of programs and information.

The captives

We started this survey with the intention of looking at business-class machines with a budget orientation, and asked for Pentium 75 to 100 MHz machines with 8 MB RAM. Several vendors showed a keen interest in sending in their newer, faster model, and we obliged them by looking at machines up to 120 MHz, as long as we also had a machine that fit the original specification.

We were not too sensitive with the price points, which allowed vendors to send in machines rich with top-of-the-line features, active-matrix screens, speedy CD-ROM drives and the like.

There are one or two machines notable in their absence. Hewlett Packard was in a transitional period with its notebook line, and didn't have a product. Compaq, too, is not represented in this month's lineup—a pity since both companies' products are popular choices for corporate users. Without further ado, on to the systems:

AST Ascentia P30

This is one of the slickest looking machines yet. The layout is tidy, clear and decidedly stylish. This 100 MHz Pentium system offered

top-notch performance, especially in light of the fact that it was only configured with its standard 8 MB RAM. The external complement of 256K cache appears to have boosted this machine's performance considerably.



The notebook is jammed with top-of-the-line features, such as a bright and beautiful 11.4" TFT LCD panel capable of 800x600 resolution, a 540 MB hard drive and 8 MB RAM. This machine has both an internal 4x CD-ROM drive and an internal floppy drive. The unit stands alone in the survey, being the only one that comes with a built-in gamepad in addition to its touchpad. The speed on this machine is decent, so, should you want to use it to do a little gaming on the road, it will meet your needs adequately.

thy of mention is that this is one of two notebooks in this survey with a keyboard which incorporates the new Windows 95 keys.

Eurocom 5400T



The 5400T is one of the most interesting items in the survey. On the face of it, it is a pretty normal notebook with a Pentium 75 MHz processor, a 10.4" TFT LCD panel capable of 800x600 resolution, a 540 MB hard drive and 8 MB RAM. This machine has both an internal 4x CD-ROM drive and an internal floppy drive. The unit stands alone in the survey, being the only one that comes with a built-in gamepad in addition to its touchpad. The speed on this machine is decent, so, should you want to use it to do a little gaming on the road, it will meet your needs adequately.

Hyperdata 773 TFT



We have seen several notebooks from Hyperdata in the past. This one is similar in form and construction to the one discussed in our last roundup, but slightly more feature-rich. The heart of the system is a 100 MHz Pentium processor; it also boasts a 10.4" TFT screen capable of 800x600 resolution and an 810 MB hard drive. Pentium models come standard with 8 MB RAM, a SCSI port and built-in sound.

The Hyperdata 700 series come with a 6x CD-ROM drive, which is well above the average spin rate in today's notebooks. For presentation versatility, the 773 offers a video port to TV interface. The unit has a lower than average price tag and offers middling performance.

A couple of small drawbacks to this unit are that the floppy drive is external, and it is slightly more bulky than the average machine due to the way the CD-ROM drive has been implemented.

IBM ThinkPad 755CX

The first ThinkPad we received arrived with a faulty power cord. We didn't notice this

Dell Latitude LM P-100SD



The demo machine we got from Dell displayed the message "For Development Only, Not For Resale" on boot up. This notebook blew through the benchmarks so quickly that we were checking to make sure that there had been no mistake with the processor speed. The 100 MHz machine beat the pants off of everything in the lab in terms of raw performance. So quick is this notebook, that it actually outpaces many desktop machines we have seen based on the same and even faster processors.

The unit's benchmark score was helped along with 16 MB RAM, a larger than standard configuration. An 11.4" TFT display provides ample viewing area; and with a 770 MB hard drive, storage will not be much of a concern. To round out the system, Dell has included 16-bit sound, along with a 4x CD-ROM drive to handle your multimedia needs. Also wor-

Continued on page 31

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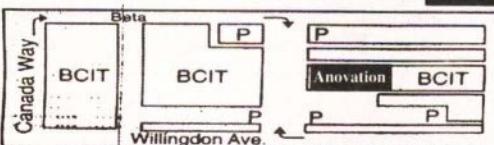
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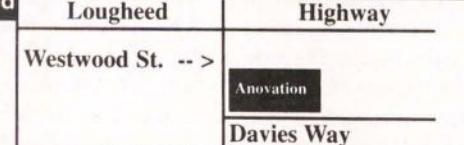
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problem until after we had handled the machine for a couple of hours. We'd had it plugged in but didn't notice that it was running off the batteries until it decided to quit. This is not, however, an indication of the quality of these devices, as the power connector looked as though it had been repaired at least once already and was not a new one that ships with the notebook. One can expect wear and tear on these demo models, especially those passing through several hands along the way.

From IBM's familiar and distinctive ThinkPad line, we reviewed the top-of-the-line 755CX model, complete with a 10.4" TFT LCD, a 1.1 GB hard drive, 8 MB RAM, a lithium-ion battery and an internal 14.4K modem. IBM shows its continued commitment to OS/2 with the ThinkPad line shipping with both Windows 3.11 and OS/2 installed. The 755CX's performance is at the higher end of the scale for Pentium 75 MHz-based machines, but its premium price pushes it off the map, coming in at around double the figures of comparable systems. To be fair to IBM, the system comes with a strong warranty, the display is sharp, and it does come with some extra software. However, our honest opinion is that the ThinkPad 755CX is a nice status symbol, but you could get a whole lot more notebook for this kind of money.

Impulse Reply 250 and CompuBook 650



Impulse divides its computer line into three categories: value-oriented Reply systems, mid-range CompuBooks, and high-performance, desktop-replacement Powerlites. We took a look at two brand new notebooks that Impulse is adding to its lineup.

The CompuBook 650, the higher end of the two models, is powered by a 120 MHz Pentium processor. The standard unit comes with a 10.4" TFT screen, an 810 MB hard drive, and 8 MB RAM; however, the unit we reviewed was equipped with 16 MB. The floppy drive is swappable and the common bay is used to house the unit's 4x CD-ROM drive. The 650 is quite petite in light of the fact that it is so feature-rich. Benchmarks were not fabulous for this machine, but were certainly acceptable, and the price point, given all its extras, is quite reasonable.

The Reply 250 differs from the older Reply 200; for example, gone is the trackball in favor of the ever-persuasive touchpad. This value-oriented notebook still manages to pack some punch with a similar configuration to the CompuBook, a slower 100 MHz processor and no CD-ROM drive. This translates into a savings of a thousand dollars over the 650.

IPC OpenNote MX 5100, MX 5120T, MX575

IPC shipped us three notebooks from its current lineup. The MX 5100 and the MX5120T are identical except for the 5120's

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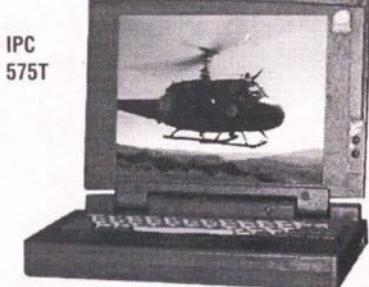
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faster processor and TFT screen. The LCDs on these units are 11.3", giving a resolution of 800x600. They come with 8 MB RAM, a 520 MB hard drive (smaller than average), 16-bit sound, and are powered by NiMH batteries. The units offered good speed, helped by their large 16 MB complement of RAM. However, the 120 MHz machine only turns in a score four percent faster than the 100 MHz-based system. This minor speed improvement, along with the nicer TFT screen, demands a \$1,300 premium, which seems a little on the steep side. The OpenNote MX575T is the least expensive notebook we looked at in this survey. For just under \$2,700, it still manages to pack a 10.4"



active-matrix LCD panel, a Pentium 75 MHz processor, 8 MB RAM, and a 520 MB hard drive. The unit is comparatively light and uses a micro joystick, which is an interesting and usable

twist on the common eraser-head type device. This is another unit that comes equipped with a built-in SCSI port. The floppy for this machine is, unfortunately, external, but at the machine's price, it is hard to grumble. All the IPC machines came with a car adapter, Microsoft productivity pack and a three-year warranty.

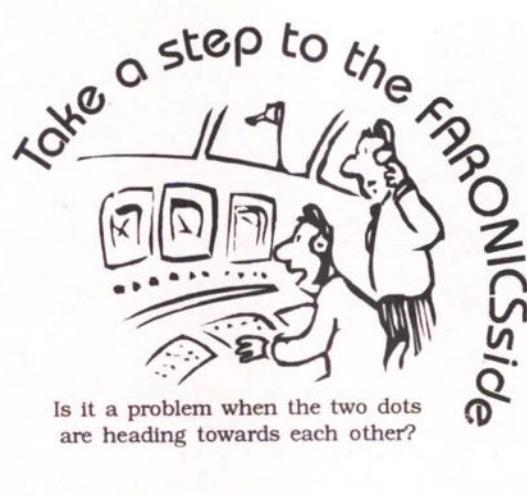
NEC Versa 2200C and 4000D

Two of NEC's coveted systems made it in for review. NEC actually had to send two 4000Ds, as the first one we received had the CMOS security enabled, and no one seemed to know the password. This proved to be a problem when we tried to set up a new operating system on the machine and it prevented us from benchmarking it. Not to worry, however—we were whisked another machine right at deadline, and we added the scores at the last minute.

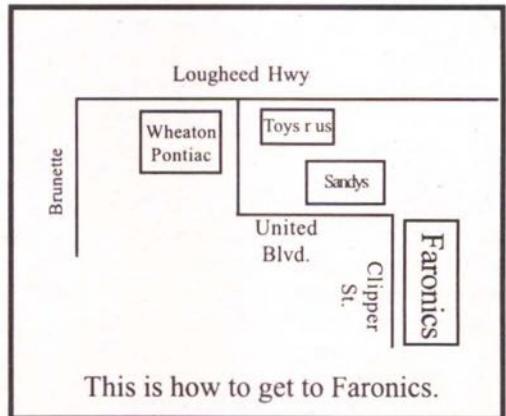


The Versa 2200C is the slightly more value-oriented machine of the pair reviewed. It has good eye appeal and would look right at home on Captain Picard's desk on the set of Star Trek. It is probably not fast enough for the captain, however. It is powered by a Pentium 75 MHz CPU, has a 9.5" TFT display, an 810 MB hard drive, and uses a lithium-ion battery. The lack of an external cache was quite detrimental to

Continued on page 34



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IBM 16 Ports Ethernet hub	\$749
Microdyne 8 Port hub	\$269
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Trident ISA SVGA, 1mb	\$85
Trident PCI SVGA, 1mb	\$75
Diamond Stealth 64 PCI, 1mb Dram	\$115
Diamond Stealth 64 PCI, 2mb Vram	\$349
ATI MACH 8 ISA, 1MB DRAM	\$ 99
ATI MACH 64 PCI, 1mb Dram	\$129
ATI MACH 64 Expression, 2mb Dram	\$179
ATI MACH 64 Winturbo, 2mb Vram	\$345
ATI MACH 64 PRO Turbo, 2mb Vram	\$435
MATROX Millenium 2mb Vram(Retail)	\$399

MODEM SPECIALS

GVC 14.4 INT. VOICE FAX	\$79
(At Time With System Purchase)	
SUPRA 28.8 INT. VOICE FAX	\$165

ALL advertised prices reflect cash discount. 2 years parts and labor depot warranty on all systems.
 All prices are subject to change without notice. All items are based on availability. Not responsible for typos.

Business class

Continued from page 32

this machine's performance, and it turned in benchmarks well below the norm. The 4000D features a larger screen, comes with a 540 MB hard drive, 8 MB RAM, has 16-bit sound capabilities and an IR port, which is lacking in the latter model. At 2.8 kg (6.3 lb.), it is about 60 g (a couple of ounces) lighter than the 2200C. If you can live without the TFT, the small premium this unit demands may well be



worth it as the 4000D is a faster machine. Both systems come with a three-year warranty and

arrive in a rugged, molded-plastic carrying case. The cases may not look as spiffy as the average canvas carrier, but they certainly feel as if they afford more protection to the notebooks.

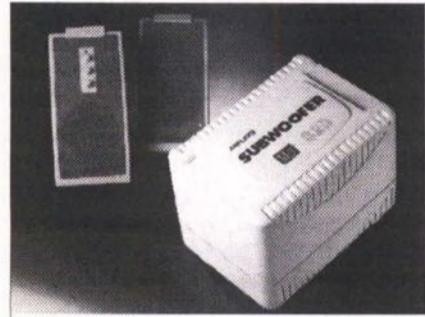
Pacific Royal Jetbook CD5 and XP6

The CD5 is one of very few notebooks we have seen that has the convenience of both a 4x CD-ROM drive and an internal floppy drive built into the case. This is quite a feat when you consider that the CD5 is no bigger than most of the other notebooks seen in this lineup. The notebooks use standard DIMMs,

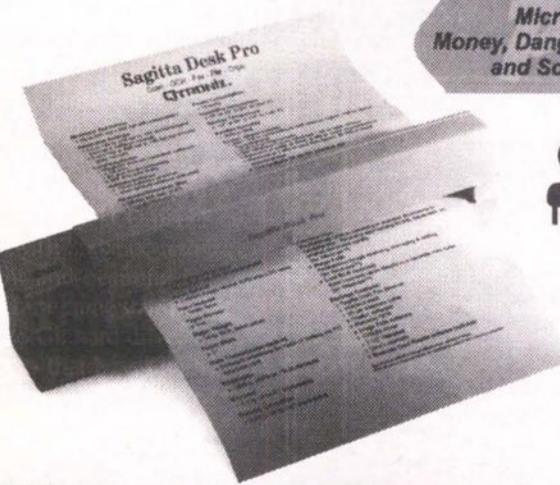


which are cheaper and easier to get than proprietary notebook RAM.

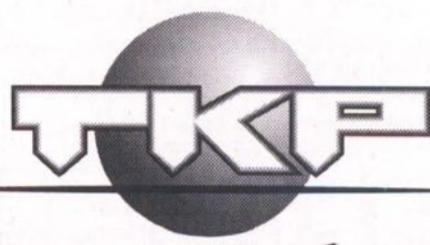
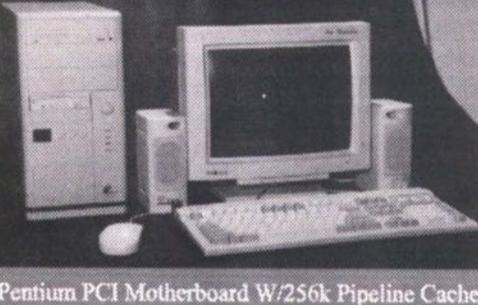
The unit's processor is upgradable to 133 MHz using a standard desktop central processing unit (CPU). The use of standard CPUs in notebooks does, however, have the drawback of reducing battery life. Both units from Pacific Royal come with a 10.4" TFT LCD panel, an 810 MB hard drive, 8 MB RAM and 16-bit sound.

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The XP6 is similar to the CD5 in its specifications, but does not come with the capability to take an internal CD-ROM drive. The unit is slightly smaller and uses a trackpad, rather than the trackpoint device found in the CD5. Neither units' performance was particularly breathtaking, but not so bad as to be considered unacceptable. The XP6 had trouble completing the word-processing section of our benchmark suite, which is not too surprising as this unit is a pre-production demo model.

Panasonic CF-41 MK III

Panasonic's notebooks are slightly more bulky than the average machine. Panasonic is one of very few companies that goes the way of not trading off performance and features for size and weight. And indeed, their notebooks are heavyweights in every sense. They are heavy on features, heavy on performance and physically heavy.

We first saw the MK1 offering from Panasonic way back in November of 1995, based on a Pentium 75 MHz processor. The line has since been revamped, and the newer model, the MK III we received, was equipped with a peppy 120 MHz CPU. The LCD panel on the unit is a 12.1" TFT with 800x600 resolution. This is huge, bright and beautiful by today's standards. The machine came standard with 16 MB RAM and a 1.35 GB hard drive.

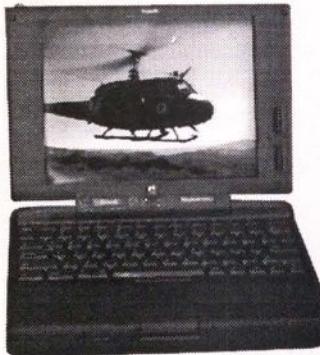
It is one of only two units that boasts both a built-in floppy and a 4x CD-ROM. The performance on this machine is unsurpassed, except by the Dell Latitude LM (which is what a statistician might call a bit of an outlier). All the features of this laptop come at two costs. The first is, as mentioned earlier, the weight of the machine, which is a good 900 g (2 lb.) heavier than most other travel mates. The second is the price: the CF-41 goes for \$8,900.

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PowerBook 5300CS

For those of you who simply must have a Macintosh computer, here is the sporty model you're looking for. The PowerBook 5300CS we reviewed is equipped with a 100 MHz PowerPC 603e processor, a 10.4" DSTN LCD panel, a 750 MB hard disk and 16 MB RAM. Naturally, the PowerBook comes with

Apple PowerBook 5300cs Spec Sheet

Processor (MHz)	PowerPC 603e 100
Screen	10.4" DSTN
Pointing device	touchpad
Hard disk	810 MB
RAM (standard/max)	16/64 MB
Weight, kg (lb.)	2.9 (6.4)
Battery type	NiMH
Dimensions cm (WxDxH)	29.2x21.5x5.5
Dimensions in. (WxDxH)	11.5x8.5x2.2
Keyboard	76/77 key
Floppy drive	internal
Palm rest cm (in.)	3.4
Max resolution	640x480
Audio	16-bit
PC card slots	2
Extras	IR port
Contact	800-665-2775 ext. 450
Sugg. retail price	\$3,399
Warranty	1 year

16-bit sound capability. The estimated street price, at \$3,400, is surprisingly competitive, making it a reasonable alternative to a PC notebook. The PowerBook offers the convenience of an external SCSI adapter, an IR port and PC-card support. The 5300CS has that polished look, typical of Apple's products.



ROM drive that fits into the floppy bay.

The HZ3070 has an 11.3" DSTN screen, a 772 MB hard disk and a lithium-ion battery. This is one of the few notebooks that use EDO

memory, and is one of only two machines we looked at that come standard with 16 MB. The machine is smaller and lighter than just about everything else in the survey.

As these machines were prototypes, and we didn't obtain benchmark results for either of them, we will have to pass on any ➤

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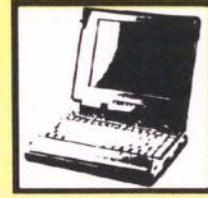
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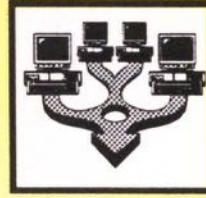
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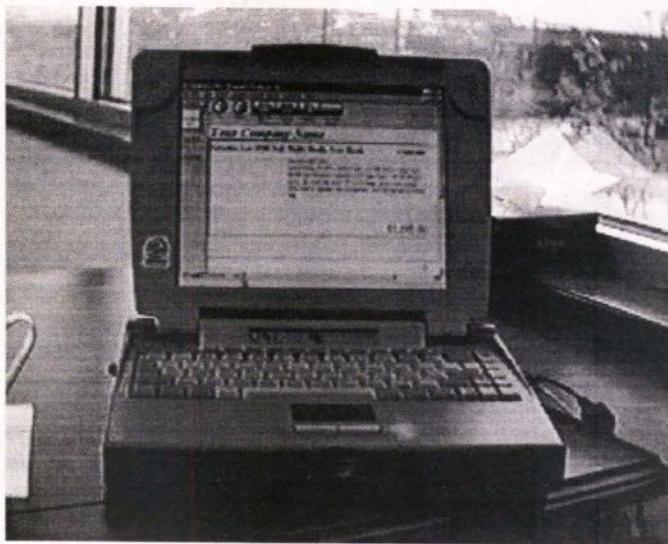


	AST Ascentia P30	Dell Latitude LM P-100SD	Eurocom 5400T	Hyperdata 773 TFT	IBM ThinkPad 755CX	Impulse Reply 250	Impulse CompuBook 650	IPC OpenNote MX5120T	IPC OpenNote MX5100	IPC OpenNote 575T
Processor (MHz)	Pent.100	Pent. 100	Pent. 75	Pent. 100	Pent. 75	Pent. 100	Pent. 120	Pent. 120	Pent. 100	Pent. 75
Screen	11.4" TFT	11.4" TFT	10.4" TFT	10.4" TFT	10.4" TFT	10.4" TFT	11.3" TFT	11.3" TFT	11.3" DSTN	10.4" TFT
Pointing device	touchpad	touchpad	touchpad	Trackpoint	Trackpoint	touchpad	touchpad	touchpad	touchpad	Micro Joystick
Hard disk	1.2 GB	770 MB	540 MB	800 MB	1.1 GB	810 MB	810 MB	520 MB	520 MB	520 MB
RAM (standard/max)	8/40 MB	16 MB	8/32 MB	8/64 MB	8 MB	8/40 MB	8/40 MB	8/64 MB	8/64 MB	8 MB
Weight, kg (lb)	3.3 (7.3)	3.4 (7.4)	3.2 (7)	3 (6.6)	2.9 (6.3)	3 (6.6)	3 (6.6)	3.5 (7.7)	3.5 (7.7)	2.3 (5.06)
Battery type	lithium ion	lithium ion	NiMH	NiMH	lithium ion	NiMH	NiMH	NiMH	NiMH	NiMH
Dimensions cm (WxDxH)	28.5x22.8x5.7	29.7x22.3x4.8	29.7x22.8x5.58	29.4x22.6x6	29.7x20.8x5	29.7x22.3x4.5	29.2x22.3x4.8	30.2x23.8x5.7	30.2x23.8x5.7	28.9x22.6x5.3
Dimensions in. (WxDxH)	11.25x9x2.25	11.7x8.8x1.9	11.7x9x2.2	11.6x8.9x2.4	11.7x8.2x2	11.7x8.8x1.8	11.5x8.8x1.9	11.9x9.4x2.25	11.9x9.4x2.25	11.4x8.9x2.1
Keyboard	81/82 key	87 key	86 key	86 key	85 key	85 key	85/86 key	85/86 key	85/86 key	84 key
Floppy drive	internal/removable	internal	internal/removable	external	internal	internal	internal/removable	internal	internal	external
Palm rest cm (in.)	6.35 (2.5)	7.36 (2.9)	7.87 (3.1)	5.08 (2)	3.3 (1.3)	8.25 (3.25)	8.12 (3.2)	7.11 (2.8)	7.11 (2.8)	7.62 (3)
Max resolution	800x600	800x600	800x600	800x600	800x600	640x480	800x600	800x600	800x600	640x480
Audio	16-bit	16-bit	8-bit	8-bit	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit
PC card slots	2	2	2	2	2	2	2	2	2	2
Extras	4x CD-ROM	4x CD-ROM	4x CD-ROM	6x CD-ROM	14.4K modem	IR port	4x CD-ROM	car adapter	car adapter	car adapter
	IR port	IR port	IR port, gamepad	video to TV port	IR port		IR port	IR port	IR port	IR port
Windows Benchmarks**										
Word processing	214.13	293.15	134.20	171.09	167.87	174.23	233.13	213.10	208.43	118.91
Spreadsheet	290.30	303.27	186.23	236.04	215.65	190.95	277.85	253.00	238.77	163.34
Database	141.71	365.77	88.43	117.81	127.80	118.41	254.84	241.97	246.06	88.42
Desktop graphics	332.41	356.40	224.22	293.29	250.83	268.04	359.45	356.72	314.85	216.60
Desktop presentation	204.57	282.39	128.25	165.25	165.05	178.83	221.97	209.36	203.93	120.17
Desktop publishing	209.94	269.02	127.89	163.41	162.84	177.49	197.26	197.81	194.40	119.32
Overall Sysmark	225.66	321.09	143.86	185.94	179.33	176.14	226.55	249.93	240.14	133.16
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Warranty	3 years	1 year	1 year	1 year	3 years	1 year	3 years	3 years	3 years	3 years

* System tested with 16 MB ** For benchmark scores, the higher numbers indicate better performance.

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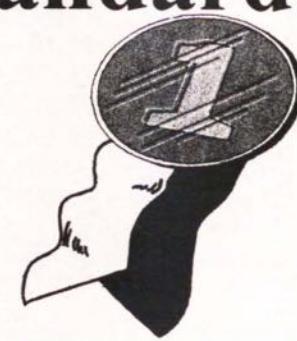
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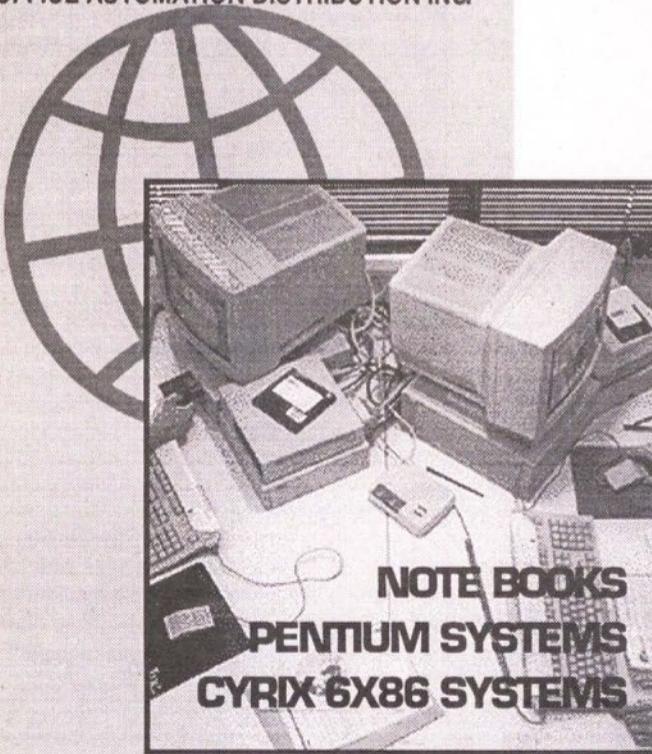
Processor (MHz)	Pent. 75	Pent. 75	Pent. 100	Pent. 100	Pent. 120	Pent. 100	Pent. 100	Pent. 75	Pent. 90	Pent. 120
Screen	9.5" TFT	10.4" DSTN	10.4" TFT	10.4" TFT	12.1" TFT	11.3" DSTN	11.3" DSTN	10.4" TFT	11.3" TFT	11.3" TFT
Pointing device	touchpad	touchpad	Trackpoint	touchpad	trackball	touchpad	touchpad	touchpad	Trackpoint	Trackpoint
Hard disk	810 MB	540 MB	810 MB	810 MB	1.35 GB	1.1 GB	772 MB	1.2 GB	810 MB	1.1 GB
RAM (standard/max)	8/40 MB	8/40 MB	8/40 MB *	8/40 MB *	16 MB/32 MB	8/40 MB	16/40 MB EDO	8/40 MB EDO	8/32 MB (EDO)	16/48 MB
Weight, kg (lb.)	2.9 (6.5)	2.9 (6.3)	3.6 (7.92)	2.6 (5.7)	4 (8.8)	3.3 (7.3)	2.6 (5.7)	2.9 (6.4)	3.4 (7.5)	3.5 (7.6)
Battery type	lithium ion	lithium ion	NiMH	NiMH	NiMH	lithium ion	lithium ion	NiMH	lithium ion	lithium ion
Dimensions cm (WxDxH)	29.9x23.8x5	29.7x24.1x5.3	29.4x24.1x5	28.9x22.3x5	29.7x23.6x5.8	29.2x22.5x5.5	28.4x22.8x3.3	29.4x22.8x5.5	29.9x22.8x5.33	29.7x22.8x5.8
Dimensions in. (WxDxH)	11.8x9.4x2	11.7x9.5x2.1	11.6x9.5x2	11.4x8.8x2	11.7x9.3x2.3	11.5x8.7x2.2	11.2x8.9x1.3	11.6x9x2.2	11.8x9x2.1	11.7x9x2.3
Keyboard	83 key	83 key	84 key	84 key	84 key	84 key	84 key	84 key	82 key	82 key
Floppy drive	internal	internal	internal	internal	internal	internal/removable	internal	internal/removable	internal/removable	external
Palm rest cm (in.)	8.89 (3.5)	8.63 (3.4)	5.08 (2)	8.32 (3.3)	2.79 (1.1)	7.36 (2.9)	7.87 (3.1)	7.62 (3)	8.63 (3.4)	8.63 (3.4)
Max resolution	640x480	640x480	800x600	800x600	800x600	800x600	800x600	640x480	800x600	800x600
Audio	—	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit
PC card slots	2	2	2	2	2	2	2	2	2	2
Extras	IR port	4x CD-ROM	IR port	4x CD-ROM	IR port	4x CD-ROM	IR port	4x CD-ROM	IR port	IR port

Windows Benchmarks**

Word processing	100.53	147.54	127.87	N/A	249.58	N/A	N/A	167.27	222.58	235.85
Spreadsheet	140.10	199.75	163.69	149.09	290.49	N/A	N/A	212.69	243.91	276.93
Database	75.90	98.53	145.78	219.42	273.05	N/A	N/A	126.58	272.30	279.66
Desktop graphics	203.05	N/A	256.34	N/A	377.66	N/A	N/A	247.60	303.77	371.15
Desktop presentation	101.62	139.24	127.13	183.87	241.67	N/A	N/A	162.43	221.28	226.90
Desktop publishing	101.19	141.27	121.48	174.40	223.29	N/A	N/A	162.03	208.79	220.82
Overall Sysmark	115.49	N/A	157.90	N/A	283.36	N/A	N/A	177.65	251.45	275.46

* System tested with 16 MB ** For benchmark scores, the higher numbers indicate better performance.

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Mini Tower Case **\$1369**

Pentium P100 Multimedia
16MB EDO SIMM RAM
1.08G HD, 1.44MB FD
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Cirrus MPEG 1MB PCI
4X CD-ROM, Soundblaster 16
Grolier, Atlas, Chess 4000, Animals
Speakers & Mouse
Pipeline Burst Cache
14" NI LR SVGA Monitor **\$1669**

Pentium & 6x86 Multimedia System Features

- Windows 95 with tutorial CD
- NEC/ IBM 1.6 G or Western Digital 1.2G
- 16MB EDO RAM 72 pin
- Logitech 2button Mouse w/ pad
- 15" tower case for extra capacity
- Grolier, US/World Atlas, Mavis, Animals, ChessMaster 4000, Reader Rabbit
- Cirrus 5446 2MB EDO PCI Graphics Crd.
- Triton Chipset, Plug & Play BIOS
- 1.44MB Floppy Drive, Windows keyboard
- 14" Noninterlaced SVGA Monitor, LR
- Pipeline Burst Cache 256K, Upgradeable
- Supra Express 28.8 Voice/Fax/Modem \$169

Options: (With the Purchase of System)

- Upgrade to 32MB EDO RAM \$229
- West Digital 2.1GB HD \$139
- Proview 15" SVGA .28 \$125
- MAG 1795 .26dp 17" SVGA \$589
- ATI Mach 64 VideoExpression 2MB \$119
- ATI Mach 64 Win Turbo 2MB VRAM \$239
- Matrox Melleum 2MB WRAM \$349
- Supra Express 28.8 Voice/Fax/Modem \$169

Accessory Specials!

Canon BJC210 Colour Inkjet Printer **\$289**
Canon BJC410 Color Inkjet Special Purchase **\$399**
SoundBlaster 16, 4x CD-ROM Drive, 25 watt Speaker Pkg. **\$195**
Acer 6X EIDE CD-ROM Drive, with audio cable, 600kb/s **\$102**
Acer 8X EIDE CD-ROM Drive, with audio cable, 900kb/s **\$189**

Modems

MegaHertz 28.8 PCMCIA Fax/Modem **\$359**
U.S. Robotics 28.8Windows Fax/Modem Internal **\$189**
U.S. Robotics 33.6 External Sportster Fax/Modem **\$248**
U.S. Robotics 33.6 Voice Internal Fax/Modem Duplex Phone **\$269**
Motorola ISDN Internal Modem 128k **\$499**

Raven Printers & Fax Machines

Raven LS3 6ppm Laser Windows Printer, 256K, 600dpi **\$459**
Raven LS6 6ppm Laser Windows Printer, 512K, 1200dpi **\$579**
Raven QuickFax 1, paper cutter, anticurl, distinctive ring **\$395**
Raven QuickFax 2, paper cutter, digital answer machine **\$449**

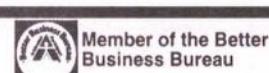
Brother Printers

Brother HL660, 6ppm laser, 2MB RAM, 600dpi **\$659**
Brother HL1260, 2MB, 12ppm, 1200dpi, postscript laser **\$1599**

Comes with
16MB EDO RAM, 6x CD ROM Drive,
Sound Blaster 16, Windows 95

CPU Speed	Intel Pentium Price	Cyrix 6x86 Price
P120	120MHz	\$1979
P133	133MHz	\$2079
P150	150MHz	\$2229
P166	166MHz	\$2459
P200	200MHz	\$3999

← Pentium Pro



2 yr Parts & Labor
Warranty

Sharp
HZ3070

solid judgment of them. However, our cursory look at them does lead us to believe they are good candidates to consider if you're in the market.

Texas Instruments Extensa 560CDT

A thing of beauty, the Extensa is powered by a



Pentium 75 processor, has a 1.2 GB hard drive and is one of the few notebooks that come with EDO RAM (8 MB) standard. The 560CDT has a lot of nice trimmings. The screen is a 10.4" TFT, the floppy swaps out for a 4x CD-ROM drive, it has 16-bit sound and an IR port.

The notebook posted scores above average

for a machine of its class and is comfortable to use. The palm rest is larger than those found on most machines and is cupped in around the touchpad to provide more ergonomic support. This unit has a suggested retail price of \$4,300. The dual-scan version, with fewer features, sells for \$3,100.

Toshiba 410CDT and Tecra 700CT

Toshiba has built a reputation for innovative and solid notebooks, and its line is a force to be reckoned with. Its sales volume is among the highest in the country.

Toshiba is one of only a handful of vendors that are remaining true to the eraser-head type pointing device, and most of their products still incorporate this technology. The Toshiba 410 is the lower-end model of the two we



reviewed, but it is certainly not a lower-end machine. The 410 came with a Pentium 90 MHz processor, an 11.3" TFT display with 800x600 resolution, a 1.6 GB hard drive and 16 MB of EDO RAM. As one has come to expect from Toshiba, the notebook has all the ➤

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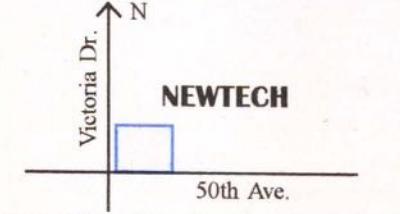
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PCI / VESA Bare Systems

- 80586 Pentium 166MHz \$1043
- 80586 Pentium 150MHz \$862
- 80586 Pentium 133MHz \$707
- 80586 Pentium 120MHz \$587
- 80586 Pentium 100MHz \$528
- 80586 Pentium 75MHz \$474
- 80486 AMD DX4/120MHz \$412
- 80486 Intel DX4/100MHz \$467

All Models Includes:

- (assembly included)
- Cache: 256K 20ns
 - Memory: 4MB
 - Case: Mini Tower (200W)
 - I/O Card: 2s/1p/1g (Pentium w/16550)
 - Keyboard: WIN95 Keyboard
 - Floppy Drive: 1.44MB

Upgrades:

- To 512K Cache (Pentium only) \$60
- To 8MB(586: 2x4MB) \$62
- 16MB(486: 1x16MB) \$142
- 16MB(586: 2x8MB) \$138
- To Mid-Tower 15" \$5
- Mid-Tower 19" \$20
- Full Tower 25" \$45
- To 256K Pipeline Cache(Pentium) \$12

CPUs

- 486 DX2-66 MHz Intel (overdrive) \$Call
- 486 DX4-100 MHz AMD \$Call
- 486 DX4-100 MHz Intel \$Call
- 486 DX4-100 MHz Intel (overdrive) \$Call
- Pentium 75MHz \$Call
- Pentium 100MHz \$Call
- Pentium 120MHz \$Call
- Pentium 133MHz \$Call
- Pentium 150MHz \$Call
- Pentium 166MHz \$Call
- Pentium Pro \$Call
- Cyrix 5x86-100/120/133 \$Call
- Cyrix 6x86-100/120/133 \$Call

Memories

- 1MB SIMM 30pin \$Call
- 4MB SIMM 30pin \$Call
- 4MB SIMM 72pin \$Call
- 8MB SIMM 72pin \$Call
- 16MB SIMM 72pin \$Call
- 4MB EDO RAM 72pin \$Call
- 8MB EDO RAM 72pin \$Call
- 16MB EDO RAM 72pin \$Call

MotherBoards (no CPUs)

- 486DX/DX4, 256K, PCI, 72p \$142
- 486DX/DX4, 256K, VLB, 30/72p \$133
- 586 GIGA 256K \$170

Name: _____

Address: _____

City: _____ Prov.: _____ Postal Code: _____

Home Tel: _____ Office Tel: _____

Fax: _____

- 586 GIGA w/ 256K Pipeline Cache \$192
- 686 Pentium Pro mainboard \$Call

Video Cards

- ATI Graphics Xpression PCI, 1M \$129
- ATI Graphics Xpression PCI, 2M \$147
- Cirrus Logic 5429 VLB \$63
- Cirrus Logic 5436 PCI \$73
- Diamond Stealth PCI 2MB \$166
- Diamond Stealth V2001 \$201
- Trident 8900CL SVGA 1MB \$65
- Trident 9440 PCI \$56
- Matrox Mellinium 2MB WRAM \$Call
- Matrox Mellinium 4MB WRAM \$Call

CD ROMs

- Toshiba 8x Speed \$185
- Toshiba 6x Speed \$117
- Toshiba Quad Speed \$87
- Mitsumi Quad Speed \$70
- Panasonic Quad Speed \$78
- Creative Lab 6x Speed \$109
- Acer 6x Speed \$108

Hard Drives

- Fujitsu 1.08GB \$268
- Quantum 850MB \$255
- 1.2GB \$315
- W.D. 850MB \$264
- 1.08GB \$282
- 1.2GB \$290
- 1.6GB \$339
- 2.1GB \$456
- 2.5GB \$560

Tape Backups

- Colorado Jumbo 350MB Internal \$123
- Colorado Jumbo 350MB External \$305
- Colorado T1000 810MB Internal \$224

Keyboards

- ACK-200 \$20
- Fujitsu 4720 \$56
- Fujitsu 4872 \$30
- Natural keyboard \$76
- Win 95 keyboard \$22

Fax / Modems

- Supra Express 28.8 int \$171
- US Robotics 28.8 /V.34 Int. \$227
- US Robotics 28.8 /V.34 Ext. \$251
- US Robotics 28.8 /V.34 Int. w/voice \$239
- Cardinal 14.4 int \$79
- Cardinal 28.8 /V.34 Int. \$177
- Cardinal 28.8 /V.34 Ext. \$222
- Cardinal 28.8 /V.34 Ext. with Voice \$263
- Motorola 28.8 Ext. \$205

Cases (with LED & Power supply)

- Desktop \$68
- Full Tower 25" \$101
- Mid-Tower 19" \$75
- Mid-Tower 15" \$61
- Mid-Tower 13" \$53

Mice

- Logitech Mouseman Serial \$62
- Logitech Serial (OEM) \$32
- MS 2 button J-Mouse \$32
- Super Mouse \$9

Monitors

- Magnavox 17" \$825
- ADI 4V 15" Microscan \$525
- Daytek 14" Non-int/Low Rad. \$315
- Daytek 15" Non-int/Low Rad. \$416
- Daytek 17" Non-int/Low Rad. \$782
- Proview 14" \$295
- Sony / NEC Model: \$Call

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- Canon BJC-210 Bubble Jet \$277
- HP 660C Inkjet \$493
- Epson stylus color 2 \$414
- HP Laserjet \$Call
- Brother Laser HL-641 \$510
- Brother Laser HL-660 600dpi \$690
- OKIDATA OL600E 600dpi \$549
- OKIDATA OL610E 600dpi \$692

I/O Controller Cards

- Adaptec SCSI ISA 1505A \$65
- Adaptec SCSI ISA 1522A \$86
- Adaptec SCSI PCI 2940 \$255
- Adaptec SCSI PCI 3940 \$420

Sound Cards

- SoundBlaster 16 \$104
- SoundBlaster 32 Retail \$219
- SoundBlaster 32 AWE \$305

Network

- 16bit NE2000 compatible card \$35
- GVC 16-bit combo \$63
- 3-Com 16-bit combo \$73

Others

- Windows 95 OEM (Full) with system \$124

SubTotal: _____

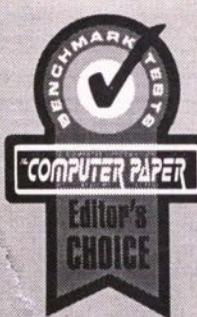
Discount: _____

Total: _____

trimmings: 4x CD-ROM drive, lithium-ion batteries, 16-bit sound, and an IR port. The machine managed to perform at the top of its class.

Tecra
700CT

The Tecra 700CT is a different bird. The unit is slightly bigger, packs a Pentium 120 MHz processor, uses the same 11.3" TFT screen, comes standard with 16 MB RAM, a 1.1 GB drive and lithium-ion batteries. On the downside, the Tecra's floppy is quite a bulky external drive. The system is a joy to use and performance is very good, but as it is the most expensive unit reviewed, we would expect no less.



AST Ascentia P30 Dell Latitude LM Panasonic MK III

Performance: Dell Latitude LM

There was no debate as to who should receive Editor's Choice in this area. The Dell Latitude LM was so fast that we were all reaching for our cheques.

Value: Dell Latitude LM

Not only is this machine fast, it is also complete, coming with a 4x built-in CD-ROM drive and audio system. Performance in a notebook often sends the price point to the wind, however, this is not so much the case with the Latitude LM which manages show-stopping speeds at a price that doesn't exclude potential buyers from a seat.

All Round: Dell Latitude LM, Panasonic MK III, AST Ascentia P30

We'll have to split in this category. The Dell is a fine performer and is also solid in the areas of features and price—a great all-rounder. However, we do also like the Panasonic. Although bigger and heavier than its brethren, it packs a wonderful 12.1" screen, offers great performance and lots of features. Admittedly, this unit is not for everyone, but it is certainly our first choice for a notebook to use in place of a desktop.

The AST Ascentia P30 not only performed well in terms of benchmark scores, but is equipped with everything you could possibly want when you're on the go. With a really sharp TFT screen, a large hard drive and full multimedia capabilities, the system can handle even the most demanding of tasks—a stylish assistant, ready to work.

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6x86-100 (P120+)	\$1263	6x86-100 (P120+)	\$1734	6x86-100 (P120+)	\$1949
6x86-120 (P150+)	\$1386	6x86-120 (P150+)	\$1857	6x86-120 (P150+)	\$2072
6x86-133 (P166+)	\$1649	6x86-133 (P166+)	\$2220	6x86-133 (P166+)	\$2335

Intel Pentium Processor-based Upgradable Systems

P-100 Triton	\$1233	P-100 Triton	\$1704	P-100 Triton	\$1919
P-120 \$1282		P-120 \$1753		P-120 \$1968	
P-133 Triton	\$1403	P-133 Triton	\$1874	P-133 Triton	\$2089
P-150 Triton	\$1543	P-150 Triton	\$2014	P-150 Triton	\$2229
P-166 Triton	\$1742	P-166 Triton	\$2213	P-166 Triton	\$2428
<ul style="list-style-type: none"> • 8MB EDO 60ns, 256K Burst Cache • 1.08GB EIDE hard drive, Mode 4 • 3.5" 1.44MB floppy disk drive • PCI EIDE, 2x16550UART, EPP • Trident PCI 9680 graphics card 1MB DRAM, Full Screen MPEG • 14" Monitor N.I.L.R., 1024x768, .28 dp • 14" Mini-tower case 200W • Logitech 3B Mini mouse • 104 Windows 95 Keyboard • 2 Year Parts and Labour Warranty 					
<ul style="list-style-type: none"> • 16MB EDO 60ns, 256K Burst Cache • 1.3GB EIDE hard drive, Mode 4 • 3.5" 1.44MB floppy disk drive • PCI EIDE, 2x16550UART, EPP • ATI Mach64 Graphic Expression 1MB DRAM, exp. 2M Full Screen MPEG • 15" Monitor N.I.L.R., Digital Control 1280x1024, .28 dp • 19" Med-tower case 200W/230W • Logitech 3B MouseMan (PS/2) • 104 Windows 95 Keyboard • 4X EIDE CD-ROM drive • Soundblaster 16bit (Creative Lab) • 60W Multimedia speakers • 2 Year Parts and Labour Warranty 					
<ul style="list-style-type: none"> • 15" N.I.L.R. \$118 16MB EDO \$95 • Multimedia 4x CD, SB16, Speaker \$189 • Options: 					
<ul style="list-style-type: none"> • 32MB EDO \$189 1.6GB Hard drive \$49 • ATI 2D /Diamond 2EDO \$29/38 • 6X /8X CD-ROM Drive \$45/119 • Options: 					
<ul style="list-style-type: none"> • 8X CD-ROM \$85 2.1/2.5GB \$99/199 • ATI 2V /Diamond 2V /Matrox 2W \$148/168/178 • 15" SONY SX. \$195 SB 32 PnP \$99 • Options: 					

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Specials!

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IOMEGA Zip Drive \$259/263
IOMEGA Jaz 1G Ext. \$789
IOMEGA Jaz Disk 1G \$135
Toshiba 8X CD-ROM \$168
USR 28.8 V.34 Voice/Fax \$228 /\$259 (Int./Ext.)
Motorola 28.8 Ext. Modem w/ Games \$219
Canon BJC-210 Color \$255
Netscape 2.0 CD Full w/ Book \$29

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Gigabyte 5486AL PCI w/ EIDE, high speed IO	\$128				
Gigabyte 586ATS PCI w/ EIDE, high speed IO	\$179				
256K Pipeline Burst Cache, Triton 430FX, Flash BIOS					
Vision QDI/Shuttle PB 586 w/ EIDE, high speed IO	\$159				
256K Pipeline Burst Cache, 430FX, Flash BIOS					
ASUS P/I-P55T2P4 w/ EIDE, high speed IO	\$238				
256K Pipeline Burst Cache, Triton 430FX, Flash					
ASUS P/I-P55TPV4 w/ EIDE, high speed IO	\$call				
256K Pipeline Burst Cache, 430VX, Flash, Support SDRAM					
TYAN TOMCAT II Dual Pentium Socket 7	\$468				
256K Pipeline Burst Cache, Triton-II, Flash, 8 RAM Slots					
Intel Endeavor 3-In-1	\$348				
256K Pipeline Burst Cache, Triton, Flash, SB 16bit					
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P75 P100 P120 P133 P150 P166	\$138	\$199	\$279	\$368	\$499
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4X-100 4X-120 5X-133 6X-100 6X-120 6x-133	\$68	\$75	\$79	\$228	\$349
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EIDE HARD DRIVES					
WESTERN DIGITAL					
Western Digital 639MB 11ms 4500 64K AC2635	\$239				
Western Digital 850MB 10ms 4500 64K AC2850	\$249				
Western Digital 1.08GB 10ms 5200 64K AC21000A	\$268				
Western Digital 1.3 GB 10ms 5200 64K AC21200A	\$279				
Western Digital 1.6 GB 10ms 5200 64K AC31600	\$325				
Western Digital 2.1 GB 10ms 5200 128K AC32100	\$420				
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Quantum					
Quantum 850MB 14ms 4500 128K TB580A	\$262				
Quantum 1.2 GB 12ms 5400 128K FB1280A	\$289				
Quantum 2.5 GB 11ms 4500 128K Sirocco	\$489				
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Seagate 1.28GB 10.5ms 5400 128K ST51270A	\$283				
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Canon	BJ210 Color	\$255			
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	Stylus Pro PC (Mac)	\$668			
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	DeskJet 680C /820C	\$645			
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Taming the paper tiger

Document management on the desktop

BY ROD LAMIRAND

Document management technology is not mature but because of improvements in OCR (optical character recognition) and OLE (object linking and embedding), there is a growing confidence that its time has come

Here we are, after a decade of living on the eve of the paperless office, and most homes and businesses are awash in paper.

Filing cabinets around the world are bulging as never before and everybody is using more paper. We all have printers. Some of us have scanners. Most have a fax. Everybody uses a photocopier. It almost seems that the long-predicted paperless office is a fiction.

The real problem is not simply this paper chase, but the difficulties of trying to manage the voluminous and disparate information that falls upon us, soft and silent, like snow flakes in the night.

We work in a word processor on letters of love or complaint, on schedules or lists. We save E-mail for fear that we might later want to find something or someone. We download from the Internet knowing that there is useful, though not timely, information in our grasp.

And all the while the data builds until one day the baggage is too heavy, the suitcases too numerous. The labels that once seemed clever now turn cryptic. So, with a sigh of regret, the data is taken off the computer and stowed carefully away never to see the light of day again. In the strange world of computers this may all make some kind of sense, but looking at it

rationality—what a big mess! This is the very kind of thing that computers were to have saved us from.

That long ago promise of a paperless office has not yet been fulfilled but great strides are finally being made. This technology is not mature but because of improvements in OCR (optical character recognition) and OLE (object linking and embedding), there is a growing confidence that its time has come.

Listed below are a few programs that found their way to the offices of *The Computer Paper*. They are not all of a kind, nor are they representative of the whole market. Rather, they are a sampling of some of the recent offerings to help you tame the paper tiger that leans so menacingly over your desk.

PageKeeper Windows 2.0

From: Caere Corporation

MSRP: US\$195.

PageKeeper for Windows 2.0 is a flexible information-management program that will scan, OCR, import, index, organize and/or search almost anything. This is a great product, which is not surprising because it is made by Caere, the makers of omniPage and WordScan (two OCR programs).



PAGEKEEPER

this small program, when running, will place a Send to PageKeeper command that will allow a user to send E-mail, text or a document to PageKeeper without leaving the current program. The install program asks if you would like to run PKDirect on startup which is a good choice for serious users.

As useful as this program is, it is PageKeeper itself that shines. The software can take a document from your scanner and save it as an image, or run it through the excellent OCR software and save it as text, or both! This is useful for poor-quality documents where the scan may incorrectly identify some words and a visual check of the image can correct the mistake.

Saving image-only documents with keywords or notes is straight-forward.

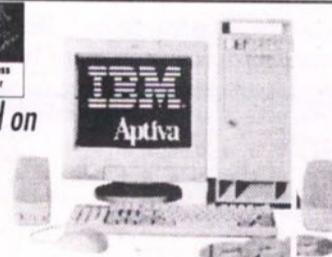
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Odyssey A92

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Win 95, MSworks 3.0, Photo Display, Quicken, Wall Street Money, Delrina Wincom, compuserve, IBM Voice Type Control, and many more.....



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HP 5PCL 6	\$1775	HP Office Jet	\$795
HP 5N Printer w/jetdirect card	\$2125	HP 4V, 600dpi	\$2693
HP 5M Printer w/jetdirect card	\$2455	HP 820C	\$527
HP 340 Portable	\$399	HP 850C	\$679
HP 4C Scanner	\$1275	HP 600 Inkjet	\$299

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DOCUMENT MANAGEMENT

PageKeeper can import plain text, of course, but also dozens of different document types. It had no problem with my Word for Windows documents even though some were Word 6 while others were RTF (rich text format). I did have problems with Word 7 documents but it is always a game of catch-up between new versions of different programs and I am confident that this will change directly.

But all this is routine, let me tell you where I was impressed. PageKeeper gives you the choice of importing text files into itself or leaving the files where they are and creating an external file index—cool. Both techniques can be useful but most programs don't allow either.

PageKeeper will also import certain E-mail message files, notably those that are VIM and/or MAPI compliant such as Microsoft Mail or cc:Mail. This proved a real bonus when I was able to take my E-mail and add it into the database I had built from files saved off the Internet. Oh, didn't I mention that it will download and manage some online files? PageKeeper will import files downloaded from WinCIM (that's CompuServe), Prodigy, AOL, and other major Internet service providers. This program will also import WinFax PRO files and turn the faxes into text documents.

There are other aspects to the program that make it very versatile such as the various search techniques, the easy-to-use drag and drop folder management and manual scan zones but that is a quick look at this program. I have only one small criticism. The search engine doesn't highlight the words it finds. This is a little annoying as the reader is obliged to scan the whole document to find the area of interest.

System requirements are one thing and the reality of what the program really needs is sometimes another. PageKeeper should have a 486 or better, 12 MB RAM and a large swap file.

Big time document management

In anticipation of this article I met with a representative of a program called DOCS Open, created by a company called DOCS Open Inc. which is a subsidiary of PC Docs Group International Inc.

PC DOCS Open is a very high-end system which allows for the storage and management of documents. To PC DOCS Open, a document is any type of file that contains data. Their motto regarding data is "anything, anywhere, anytime."

This program is one that runs between applications and an operating system and transparently allows files from the data storage area to the user.

The program is amazing and can do almost anything, but it is a modular system with a very big price tag. The features that were demonstrated to me were far above anything most small businesses would need. Perhaps that is why the client list for this product includes the Pentagon, various governments and some multi-national corporations.

You can use it on a laptop, but unless the system is in use at your business, this would be overkill. With their expertise in managing databases as large as one million documents and their new expansion into Internet, secure data routing and management, look to this company if you are planning secure document management on a grand scale. —RL

PageKeeper is one of the best programs looked at here, even with the rather cheesy icons.

Contact: Caere Corp., 100 Cooper Ct., Los Gatos, CA, 95030. Tel: 800-535-7226.

askSam for Windows 3.0

From: askSam Systems

MSRP: US\$149.95, (US\$395 for professional version with full-text indexing)



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I look at between 40 and 50 software programs a year and it is rare indeed that I take on a new program for my real-world productivity. askSam is that rare program and I am tickled pink by everything about it.

Never have I seen so much value squeezed into so little space and offered at such a good price. askSam is a fast, free-form, flexible, information-management program. It doesn't do external file indexing or OCR scanning like the bigger and slicker PageKeeper, nor is it very good with image files, but it goes through text files like a seal through salmon—it's quick! The program takes various word processing files (.txt, .rtf, .wpd 5.1 thru 6.1, and .doc 6 to 7 to name some) and converts them to plain-text askSam documents.

Yes, you lose some of your formatting but in exchange you get small file size and great speed. You can also import your Eudora mail files. Thus I was able to automatically and without any trouble bring in my trash mailbox from the last year. At any time, I can do a name, word or number search of all my E-mail correspondence. This is very useful.

The program also allows you to save Web pages and then import them into your database. This is also extremely useful as you often find information and pages that you want to keep. Bookmarking them only gives you a pointer that you may never return to, while saving the page does not allow you to search more than one page at a time.

With askSam I save pages and sites willy-nilly, then every so often import them into my askSam Internet database and they are there. Even better, they maintain their hypertext markup language (HTML) look and feel, they are still hot linked if the link refers to the same page, and clicking on any other link will bring up the Web address and an option to Save to Clipboard. Of course, askSam is also a small but friendly Web page-creation program.

As wonderful as all this is for the home or small office user, the program is also a serious business application. askSam will create reports by searching for words, or numbers, or dates, or equations but even better, it is a great electronic-forms creation and management program.

Lastly, askSam has a number of useful and important functions such as: Date and Time Stamp, database file compression, auto field recognition, multiple enlarge button, telephone caller and more. This is not a big professional program for use with a scanner. This is a small, accurate, fast, useful program that will allow you to put all your data in one place, and actually be able to find and use the information without more work than it's worth, and to add new data from almost anywhere, anytime.

Contact: askSam Systems, PO Box 1428, Perry, Fla., 32347. Tel: 904-584-6590.
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Recollect Gold

MindWorks

Recollect Gold for Windows

From: MindWorks Corp.

MSRP: \$799

Recollect Gold is a business application that is built for both text- and image-based documents. Recollect imports or scans

text or image files to store in an annotated and indexed database. The program has all the major features that you can find in PageKeeper: built in OCR, support for a large number of scanners, document highlighting and image manipulation.

Recollect has a number of import filters for popular word processors and these proved good. The import process has various options and creates a full text index for a number of search techniques.

The aspect of this program which stood out as better than the rest was its excellent

management of images. Recollect Gold is very good at dealing with scanned images. The user can add lengthy notation, highlighting, and arrows and even adjust the brightness. Depending on your scanner, the software can deal with a large number of different resolution scans—and color. Recollect performs speedy searches and nicely highlights the words that it finds. The scope of the many types of searches is flexible and over time a user could become quite proficient at finding just the right information in the database.

There is no doubt in my mind that this

program is a solid one that would be great for a number of businesses. There is a slew of small yet important features such as its ability to de-skew images, and create and import templates, export files and customizable views.

For all that, there is one aspect of the program I did not like—the interface. Recollect Gold uses the metaphor of folders and drawers—nothing wrong with that. And yet, time and again I would find myself having to refer to the well-written manual to figure something out.

Regardless, there is nothing wrong with the layout of this program, nothing that a few weeks practice wouldn't cure. And perhaps, when an employee had spent some time with it, there would prove to be reasons for certain procedures, steps, ways of getting

Continued on page 44

Vexing TWAIN and tedious TIFF

In the area of document management there are a number of things that are less than perfect. This is a developing area of the computer world and there is always some hitch or other. Here are a few of the things to look out for.

Scanner

Make certain that your software specifically lists your scanner. This will allow you to avoid one of the most vexatious problems: incompatible software and hardware.

Programs will claim that they will accept most TWAIN-compliant devices but the TWAIN specification is very sloppily adhered to—more often than not the device and the program will not work properly together, if at all.

As for hand scanners, they're cute as bunny ears—and for document management, almost as useful! Get a real flatbed or sheet scanner. Or, for small-office, home-office use, one of the breed of new personal scanners.

Software compatibility

Although most of these programs claim to import almost anything, this is only as true as saying that you can garden with a spoon—you can, but!

Unfortunately, it is often the case that you can't tell exactly which versions of which programs a product will import without opening the box. Cutting the shrink wrap off big expensive computer programs is a bit of a faux pas at my local store, so here is what you can do—visit the company's Web site. Practically every software company out there now has a site—often with patches.

For this review, I twice downloaded patches which allowed me to import updated versions of software that had come out in the last year.

Failing this, use the telephone and call the company. Asking a retail salesman is a good way to have a basketful of problems if you later try to return the opened software. What you need to ask is "Does this program support version X of my word processor/graphic program?" Because if you have Microsoft Word 6.0 and the program only imports up to 5.1 you are stuck.

Worse, there are a number of flavors of TIFF files. I would guesstimate that almost half the time I try to open a TIFF file from a different program than I created it in, it doesn't work. —RL

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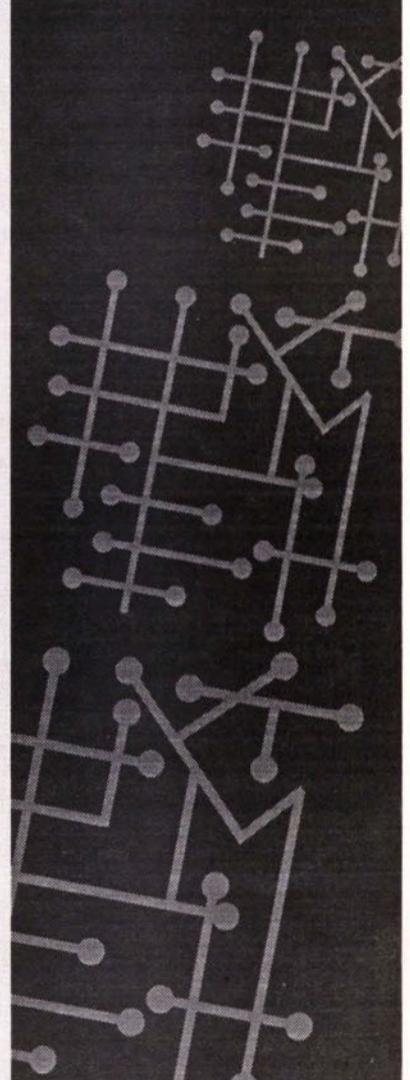
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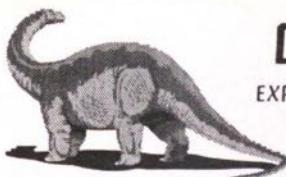
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Taming the paper tiger

Continued from page 42

from one thing to another. This doesn't change the fact that the program takes some getting used to.

Recollect Gold is a solid business application which handles text and images with equal ease. Good scanner support and software-import capabilities are only slightly offset by an interface that seems a little clumsy.

Recollect Gold only needs a 386-33 and 4 MB RAM to run but prefers a 486-33 or better with 8 MB. Like the others, this program was not specifically written for Win 95 but works well on it.

Contact: Canadian distributor: Quest Imaging, Tel: 604-685-7003. MindWorks Corp., Tel: 1-408-730-2100.

EZ Recall

From: EZ Image Inc.
MSRP: single user, US\$1,495 (multi-user licences available)

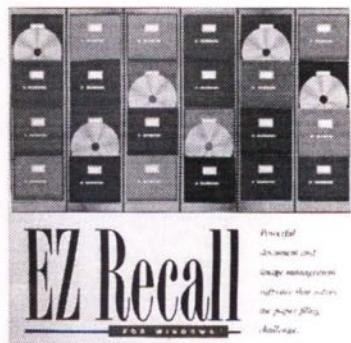
EZ Recall is a business program that bills itself as "the complete business records centre solution." That is because this is a hardware/software full-service solution for a small- to medium-sized company.

I got hold of the software and looked it over. It seems decent enough; however, the value in this type of system is in the day-to-day tracking of large numbers of documents. This company will come into your business and set up only the parts of its system that you need. OCR? Capture of faxes or forms? Storage on CD-ROM, hard drive, optical disk or even

COM (computer output to microfiche)? They can allow access to your local area network (LAN) or wide-area network (WAN).

There are great search capabilities and indexing as well as document duplication, copying of data, pasting, notation, date and time stamping. The software can combine OCR and bar coding with template and zone recognition to build custom systems to track almost anything from 18 wheelers to newspaper articles.

EZ Image Inc.



EZ Recall
Powered document and image management software that makes the paper filing challenge a thing of the past.

The interface itself is simple and Spartan; the functions practical and expected; and the system logical.

If you run a business in which full filing cabinets are being carted up to the back room, requiring a team to be sent in to the room every couple of months to track something down, then this is the program for you.

EZ Image is a smaller company out of Washington State that has some stiff competition but which has a good product and knows its clientele. □

Contact: EZ Image Inc., PO Box 73284, Puyallup, Wash., 98373. Tel: 800-677-9333.



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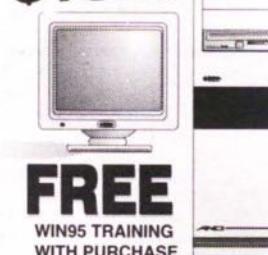
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Internet Ready Software
3 Years Parts and Labour Warranty
6 hours of free Computer Training with system purchase

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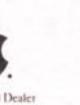
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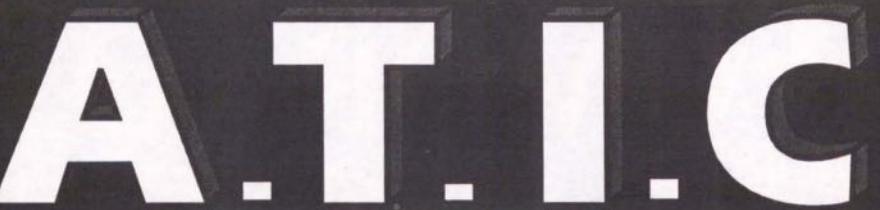
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January 9, 1996
Millennia

MILLENNIA P166

- Intel 166MHz Pentium® processor
- 512KB pipelined burst cache, flash BIOS
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- 16-bit stereo sound & speakers
- PCI 64-bit 3D video, MPEG, 2MB EDO
- Tool-free minitower or desktop
- Microsoft® Mouse, 104-key keyboard
- Microsoft Windows® 95 and MS Plus! CD
- 5-year/3-year Micron Power™ warranty**

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- 16-bit stereo sound & speakers
- PCI 64-bit 3D video, MPEG, 2MB EDO
- Tool-free minitower or desktop
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Micron's Home MPC holds your key to open the world. Loaded with up to 150MHz of Pentium® processor power, the Home MPC features new optimized memory technologies such as EDO memory and pipelined burst cache, along with state-of-the-art innovations such as plug-and-play ready flash BIOS and 8X CD-ROM. Everything you need to make your computer perform beyond your expectations is included. With the bundled software and multimedia package, you'll be astonished at where your Home MPC will take you. Get ready for the ride, but beware—you may never want to leave home.

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Home MPC P166



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pentium

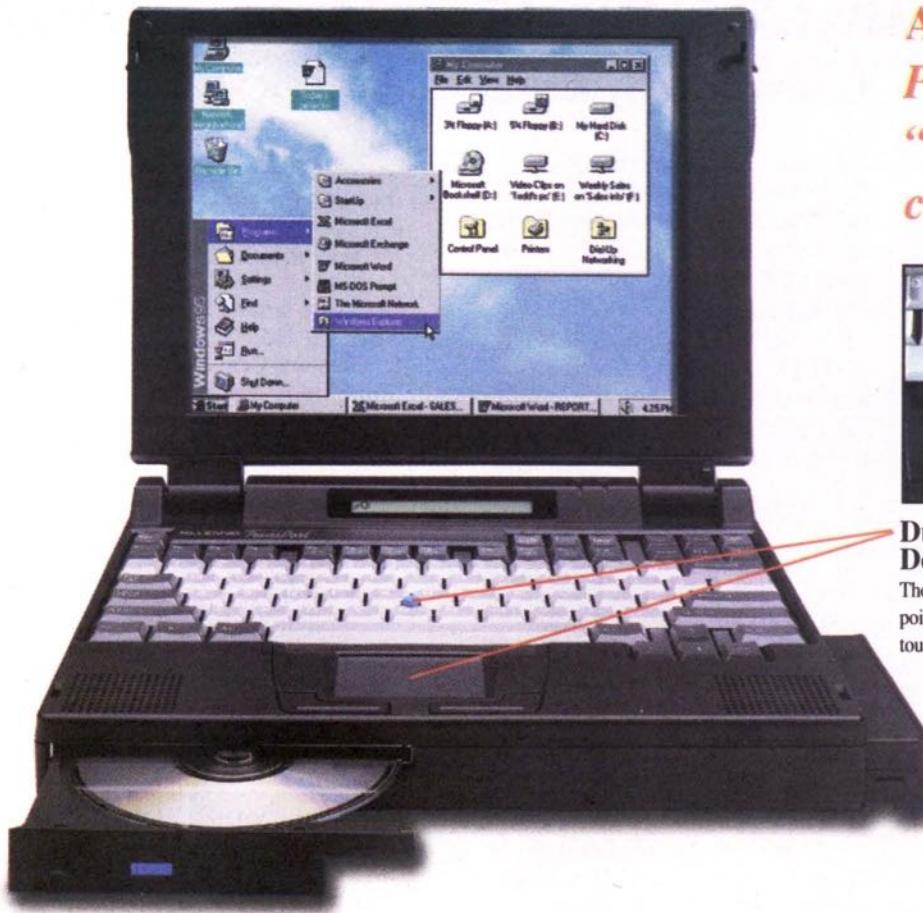


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1.44MB Floppy Drive
PCI Video Card w/1M Memory (exp. to 2M)
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Mini-tower Case w/200W PS
104 Win'95 Enhanced Keyboard
Logitek 3B Mouseman

\$1169/\$1239/\$1299

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Logitek 3B Mouseman

\$1750/\$1900/\$2100

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Before Bell Canada started offering integrated service digital network (ISDN) service for the home in December, home users had to pay business rates (and if you live where Bell isn't the phone company, you still do).

Bell's home ISDN offering is currently known as Microlink and promoted as Z@P (pronounced ZAP), and will, by the time you read this, cost between \$50 and \$57 per month.

This charge gives you a basic rate interface (BRI) line, which consists of two B channels and one D channel. In simple English, this means you get two telephone lines, each with its own number and the ability to transfer voice and data at speeds up to 64Kbps.

Until July 2, Bell will waive the installation charge. While this promotion is good only if you live in Ontario or Quebec, you can bet that home ISDN itself is—or will be—offered in other parts of the country. You can check whether the service is available to you by going to <http://www.canisdn.net/> on the Internet and entering your area code and the first three digits of your phone number at "ISDN Availability."

Ordering the goods

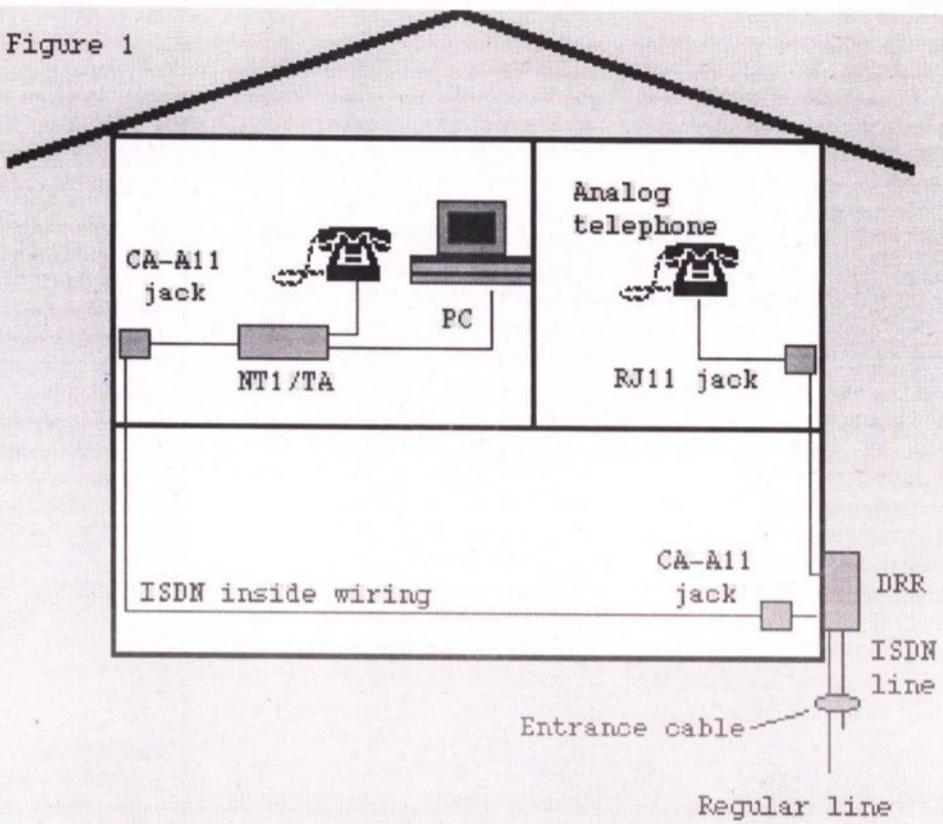
Ordering an ISDN line used to be quite a complex operation, requiring you to figure out the technical aspects of your setup. Now, getting a home ISDN line from Bell is a piece of cake. It's all a matter of phoning Bell and saying "Yeah, give me one of those ISDN lines at home and bill it with my regular service."

You can only get an ISDN line in your area if the switch has been set up to allow it. Bell has implemented ISDN capability in a surprisingly large residential area already. When

ISDN comes home

BY CHRIS FISHER

Figure 1



I phoned to inquire about getting a line, I was pleasantly surprised to find out that the service was already available where I live.

The business of physically installing a line is straightforward. Many homes already have two pairs of copper wire coming into them. One pair is undoubtedly used for your POTS (plain old telephone service), the other pair is usually spare unless you have two lines in your home.

ISDN only requires one pair of copper wires, so if all is well, the service can be added without laying down any extra wire. In other words, you can usually have an ISDN line and a POTS line with the existing wiring to your home.

What's the catch?

There are catches to ISDN home service which come in the form of technical or service limitations and hidden costs. On top of the flat monthly fee, there is a usage fee for outgoing calls. This amounts to \$1 an hour from 7 a.m. to 7 p.m., Monday to Friday. For those who work outside the home, this isn't really much of an issue, as you are most likely not using the phone during these hours. Moreover, there is a cap of \$50 on the usage fee, so even if you did decide to get one for home-business purposes, or found yourself at home for an extended period, the bill will not run too far away from you.

Currently there are no smart-touch services such as caller ID, call answer, etc., so if you plan to use ISDN as a primary telephone service, you'd better be able to live without these. ISDN does support these types of features, and Bell informs me that they are looking at adding some of them to the service in the future.

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The real pocket stinger lies in the fact that you need to purchase several pieces of equipment before you can do anything useful with an ISDN line. These are a terminating device (NT1), used to interface with the ISDN line and required to connect ISDN terminal equipment to the line, and a terminal adapter (TA), which enables connection of non-ISDN devices such as telephones to the line. One usually (but not always) finds these elements combined in a single unit which doubles as an ISDN modem. The Motorola BitSURFR is such a device.

Finally, ISDN lines do not provide power online. Thus, unlike a regular telephone line, if there is a power outage, telephone devices on an ISDN line will no longer work. Because of this, Bell recommends that you keep your analog line in addition to the ISDN line for emergencies.

You can get around this problem by installing a uninterruptible power supply (UPS) on the NT1/TA.

The surfing experience

One of the nicest features of ISDN is the speed with which the call is dialed and connected. Rather than a 20-second wait using a 28.8 analog modem, the ISDN counterpart can make a connection in under a second. This has had a profound effect on how I use the Internet.

Using a 28.8Kbps modem, I would make mental notes on stuff I had to find out and wait until I had enough to make the chore of connecting worthwhile. Since I've had ISDN, the Internet has become more like another-

er application. I click, I connect, I seek, I consume, I disconnect. In essence, using ISDN has turned what used to be a batch process job into more of a transaction processing one.

ISDN is quick. Theoretically, using one B channel, the connection is a little over twice as fast as a 28.8Kbps modem connection. In practice, I find the connection offers somewhere close to double and sometimes triple the speed.

As many of you know from experience, a 28.8Kbps modem will rarely connect at its top speed, and even if it does, it will quite often drop back to lower speeds during the call due to line noise, etc.

An ISDN line has little to no interference. Connections are robust and always fast. Often, when communicating with the Internet, the bottleneck is not the connection speed, but the particular point on the Net that you're trying to get to. My browser stalls the same way it always has—"Waiting to connect." On the whole, however, I'm quite happy about the new lease that ISDN has given the Internet.

Anyone who has upgraded from a 14.4Kbps modem to a 28.8Kbps modem will have an idea of what twice the speed means: a lot less thumb twiddling. Even the most graphic-intensive of Web pages reach my screen before I've started to fidget. My desire for instant gratification is indulged.

This new-found speed has also made me more intrepid about trying out new things. I've watched videos over the Internet, listened to an hour-long Web Cast from

Apple's CEO, and tried a whole lot of plug-ins for the Navigator. Even though many of these features are designed to work with slower modem connections, personally, I have always passed them by because of the "time-to-load, cheesy-payoff" equation.

Multitasking is another area where I have seen a big improvement. It seems like nothing now to start a few instances of the browser and download several files at once. I even dare to open my PIM and start a word processor while the connection is in progress—stunts I wouldn't often attempt with a modem in use.

We've had an ISDN connection to the Internet at *The Computer Paper's* office for quite some time, which is routed and shared over our local area network (LAN). I have seen more than a few other offices where this is also the case, however, a home connection somehow seems nicer. The bandwidth is mine and mine alone.

ISDN can also make telecommuting more viable—I use it to access both my machine at work and the company e-mail server. As I do this using TCP/IP over the Internet, no additional ISDN lines are needed at work. Certainly, an ISDN dial-up directly into the paper would provide a faster connection (as there is no Internet bottleneck to contend with) but, for grabbing a document or two, checking correspondence and making sure that the previous evening's backup was completed without error, this scheme works well.

ISDN terms

Bell and others, like Motorola, seem to be working hard to take some of the more technical aspects out of ISDN.

As Mike Pun from Motorola put it, "At inception all technology is complex. A standard modem is a complex piece of equipment, but as the technology matures, the complexity is buried."

This is true. Not too long ago you may have needed to know what a command like

AT&F&C1&D2N3W1S7=90S10=60S95=47S7=60S11 did to get a modem to function. These days such instructions are sent behind the scenes, abstracted by a graphical user interface, and users are not overburdened.

ISDN is, in fact, old technology. However, it still hasn't seen enough widespread adoption to bring its associated lingo into common use.

Here is a peppering of terms to get started:

B Channel (Bearer channel): these are used to transmit voice and data. A "B channel" runs at speeds up to 64Kbps.

BONDING: An acronym for the protocol standard from the Bandwidth On Demand Interoperability Group.

this allows B channels to "bond" or be used simultaneously for higher-data speeds.

BRI (basic rate interface): The most common and least expensive ISDN service, it combines two 64Kbps B channels and a 16 Kbps D channel.

D Channel (Delta Channel): Used to support the overhead of ISDN, it carries call setup and signaling information.

National ISDN: This is a set of design specifications that facilitates compatibility between ISDN equipment.

NT1 (network terminating device): This device serves as the interface to an ISDN line, providing diagnostics and line testing.

PRI (primary rate interface): This consists of 23 64Kbps B channels and one D 64Kbps channel.

SPID (service provider identifier): This is the number provided by the ISDN service provider to identify the service and features of your line.

TA (terminal adapter): A device that enables non-ISDN equipment such as telephones and modems and fax machines to be used on an ISDN line.

—CF

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GETTING CONNECTED

Q: When is a modem not a modem?

A: When it's an ISDN modem.

Many devices used for communicating across ISDN telephone lines are generically termed ISDN modems, but this is a total misnomer.

The word modem, as many of you know, is a concatenation of modulator/demodulator, which is exactly what a modem does on an analog POTS line: it converts a digital signal to analog, and then back to digital. With an ISDN connection, modulation/demodulation doesn't occur, as the information can be passed in a digital fashion.

In fact you can't use a standard ISDN "modem" to send faxes or connect to other analog modems. However, some ISDN devices also come with analog data-communication capability.

The internal-external debate

Microsoft has stepped onto the ISDN band wagon in a big way and has entered into the business of recommending hardware. Its Web site recommends using an internal adapter over an external one. This is because most COM ports only support speeds up to 115.2Kbps. Microsoft's reasoning is that a call placed with two B channels has the potential to transfer data at 128Kbps, and thus an external model creates a small bottleneck at the computer. Internal models bypass this problem.

However, in my opinion, the convenience of an external model far outweighs any bottleneck problems. Having an internal model with an integrated NT1 means that if you turn your computer off you lose all ISDN phone service. If you want to use a power backup unit for an internal model, you will need one capable of powering your entire computer for some length of time, whereas an external model could run for hours on the

cheapest of UPSes.

Finally, if you will use your ISDN connection for Internet connectivity from home, it is unlikely under present conditions that you will sustain data throughputs at higher than 115.2Kbps long enough for any bottleneck to be realized.

Internet service providers

There is still the issue of finding a service provider that will allow you to use your ISDN line. These are still fairly few and far between. At the time of this writing, even Bell's Sympatico had not yet implemented ISDN dial-up. I phoned iSTAR and asked whether any service providers that fell under their umbrella offered this service. The answer was no.

It's funny how the information industry always seems to want to offer the solution you need months or years after you need it.

As a word of caution, if you are considering an ISDN line and will use it for Internet access, I suggest you survey the providers in your area. Several providers offering this service have decided to charge an arm and a leg—more than \$100 a month—for this kind of service.

Hopefully, as ISDN lines become more commonplace, the forces of competition will crush these rates. □

Contacts:

Web sites: There's lots of ISDN info on the Internet. A couple of good Canadian starting points are:
<http://www.bell.ca/bell/eng/products/res/isdn/default.htm>
<http://www.bell.ca/promo/zap>
<http://www.canisdn.net/>
<http://www.microsoft.com/windows/getisdn/>
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 Bell ISDN Service Center, Tel: 888-999-ISDN.
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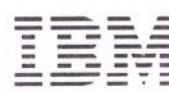
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The Motorola BitSURFR Pro

BY CHRIS FISHER

When in the process of arranging ISDN service with Bell Canada, company reps spoke about Motorola's BitSURFR as if it were the only ISDN modem option available to put at my end of the line. It isn't, but I was curious enough about it that I got my hands on one for evaluation.

Mike Pun from Motorola dropped by, and gave us a truly informative session on the finer points of ISDN and the BitSURFR line.

The BitSURFR's default settings are for standards predominant in the United States. The only default setting that affects Canadians is the channel speed, which is set to 56Kbps out of the box and needs to be changed to 64Kbps, which is more common in Canada.

Before you can do anything with an ISDN modem terminal adapter (TA), you need to tell it several things about your ISDN line. This information includes your directory

numbers (your two ISDN phone numbers), and your service provider identifier (SPID).

Configuration Manager, the software used to set the BitSURFR up, is a little on the overwhelming side. Motorola does, however, have a more friendly setup program available on the Web, which will probably be shipped with newer BitSURFR packages.

Once you input the required parameters, these are downloaded to the BitSURFR. If everything is in order, the line sync-light on the BitSURFR goes from solid red to solid green and everything is ready to go.

I have to admit that this took me about three tries. The first effort was a failure because I used Motorola's new configuration program, not realizing that this didn't allow you to change the channel speed. I switched to the older Configuration Manager and tried again. Still it didn't work. In the end, I used the excellent diagnostic tool in the new setup program

to figure out that my SPIDs were wrong. I corrected them, sent the information to the BitSURFR and waited. A few seconds later the line-sync light went solid green.

I entered the appropriate ISDN telephone number for an internet service provider, hit connect, and moments later I was online. I was quite amazed at the simplicity of the setup and how quickly I got the BitSURFR Pro from out of the box to connection. I had prepared myself for hours of wrestling as is often the case when you're putting an unfamiliar piece of equipment to work. I'm happy to report that the BitSURFR barely put my skills to the test.

The BitSURFR Pro is quite complete in its feature set and will satisfy the needs of many individuals. The models in the BitSURFR line all have an integrated NT1. The Pro comes with two analog telephone jacks, one for each ISDN directory number.

It supports data transfer rates up to 128Kbps synchronous and 115.2Kbps asynchronous, V.120 rate adaption, single and multi-link PPP async-to-sync conversion, AIMUX, synchronous BONDING (Bandwidth on Demand Interoperability Group) throughput, caller ID, call waiting and conference calling. You can program and communicate with the BitSURFR using the ISDN AT command set.

My hesitations in recommending the BitSURFR are few. It only has the ability to produce a single ring on each analog port, and as such, is not good enough to use for driving house wiring. The model I received came with no information on Canadian setup, though I understand that this will shortly change, and the external unit does not come with the necessary serial cable to hook it to the computer. □

Contact: Motorola, Tel: 888-4A-SURFR
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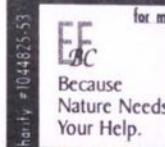
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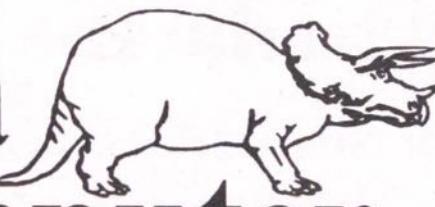
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Product: CPU MAXimizer GB586NB-133
notebook upgrade CPU
From: Gainberry Computer Products Inc.
Estimated Street Price: \$265

The first time I actually swooned was just after discovering what girls were about. Discovering this product was the second time.

Diligent readers will have noticed two articles in previous issues of *The Computer Paper* in which yours truly looked at upgrading first portables, then desktops. Despite several technical difficulties chip-wise, my experience with desktops was that upgrades were somewhat straightforward and relatively easy. Portables proved otherwise. There were so many "ifs" and "if you're lucky," that most laptop owners likely took the hint and left not-so-well enough alone.

But there I was, standing at my door, with an unexpected box in my hand from Gainberry Computer Products Inc. I'd heard of Gainberry before, largely because my upgrade articles had generated a lot of response and Gainberry noses, according to my e-mail, were slightly out of joint because I'd failed to mention them.

Gainberry, you see, is in the business of making central processing unit (CPU)

upgrades. Until recently, its catalog of products consisted of desktop CPU upgrades based on AMD chips. Now—and this is where the swoon finally comes in—they are producing an AMD 5x86 chip especially wired up to bring my aging DX/2 50 notebook into the Pentium-like world of the 5x86.

Really diligent readers will recall several references I've made over the years to my trusty NEC Versa E notebook which, a whole three years ago, was the superest kid on the block: DX/2 50 power, 4 MB RAM, a 210 MB hard drive and that oh-so-wonderful active color screen. Except for adding another 8 MB RAM, it all remains the same and I'm becoming less and less enchanted waiting for things to happen when I try to get my work done.

"Gee," I have often thought, "if only there was some way to upgrade the CPU," or words to that effect (this is a family publication after all).

Paradoxically, NEC did make an upgrade available for my Versa E at one time in the recent past, but it was only to a DX/4 75, it required factory installation and it cost—I'm not sure you're going to believe this—\$2,600!

I decided to skip it.

Now, for about one-tenth of that amount, Gainberry promises Pentium 133-like speed.

The product itself is a simple enough looking CPU with the standard 168-pin mount.

The instruction manual simply tells you to pull out the old chip and put in the new. All that jumper and BIOS stuff will only come into play on specific models and the chip is compatible with virtually any motherboard bus.

Trusting soul that I am, I nearly did the deed too. Within minutes I had my computer belly up on my desk and a screw driver firmly in hand.

Then it came to me—I'd only just paid a considerable sum for a two-year extension on my warranty. I decided I'd better call NEC first.

Of course, the first person I spoke with didn't know what the heck I was talking about when I asked if a self-inflicted CPU upgrade would void my warranty—though she was far more lucid about the chances of getting my money back if I decided to opt-out of the warranty for the sake of the upgrade. We left it that she'd get a technical type to call me back. I got my call back from NEC that very afternoon.

I had a problem: NEC used what's called a "four-corner carrier package" for mounting the CPU in my Versa. In simple terms, that means it's soldered to the motherboard, *never* to be excised. In even simpler terms, that means I did all that swooning for nothing.

Still, I wanted to know what was up so I called Gainberry and eventually talked with one of their technicians.

It turns out that the notebook upgrade chip is, in fact, an AMD 5x86 with a clock quadrupler built in. That's why it works with any motherboard bus. Regardless of your original bus speed, the Gainberry unit will work at four times the pace. Ergo, my DX/2 50 would not have blossomed into the P-133 equivalent I'd read about on the box. It would instead have become a more modest, but still quite fabulous, P-100 equivalent because my motherboard bus runs at 25 MHz.

But that's neither here nor there because it just ain't gonna happen for me. But it might happen for you.

Despite my own unfortunate chip-mounting circumstance, this will be the ideal product for hordes of notebook users reluctant to retire their multi-thousand-dollar dinosaur—maddeningly slow as it might now be.

The GB586NB-133 comes complete with a chip pulling tool (for L1F socketed CPUs) and even includes a US\$40 rebate voucher to cover the cost of installation if you're not quite up to the task yourself. All you have to supply is a notebook with a PGA CPU socket.

Consult your manual. □

Contact: Gainberry Computer Products Inc., 165 Steelcase Rd. E., Markham, Ont., L3R-1G1. Tel: 800-825-7331. Fax: 905-415-9970.

HARDWARE

Update to notebook upgrades:

New chip for old portables (perhaps)

BY ROSS MACDONALD

Product: CPU MAXimizer GB586NB-133
notebook upgrade CPU
From: Gainberry Computer Products Inc.
Estimated Street Price: \$265

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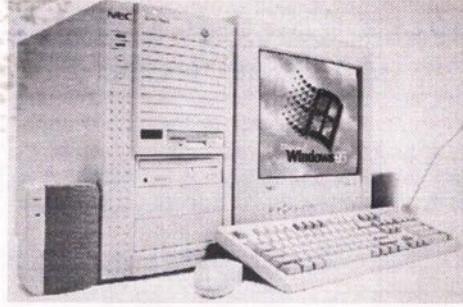
BY ROSS MACDONALD

Product: NEC Ready 7610 Multimedia Computer
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As NEC's consumer line, the Ready series has been a very good seller over the past few years because many con-

sumers have learned, after some diligent shopping, that they could get premium-quality stuff for only slightly more money.

(NEC recently announced that it has reduced prices on its Ready computers by \$78 to \$300, depending on which of the seven



models you're after).

Having the Ready 7610 to play with, while testing out NEC's new monitor, gave

me an opportunity to see what you might get these days when you're ready for a Ready.

First, I should point out that the 7610 is the low-end of the Ready line. However, even at \$2,599, you get a Pentium 120 machine that comes standard with 8 MB EDO RAM, a 1.2 GB hard drive, 1 MB of video RAM, a 28.8Kbps data/fax/voice modem, a 4x CD-ROM drive, a microphone and SoundBlaster compatible 16-bit sound with a couple of really cheap five-watt speakers thrown in for good measure.

Continued on page 63

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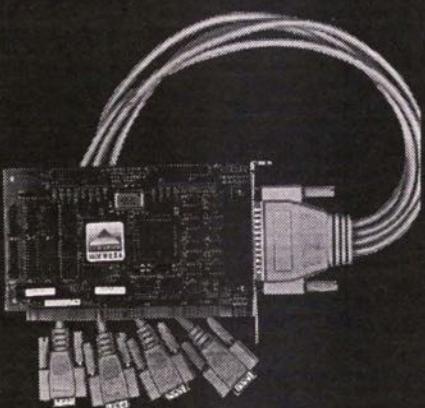
The COM port saga:

FlexPort to the rescue

BY CHRIS FISHER

An ISDN modem needs a COM port to operate. As most ISDN modems cannot be used to send data calls to standard modems and fax machines, you may need to keep a modem in your system for these duties.

Installing three devices and allowing them to operate simultaneously using standard PC COM ports requires a bit of trickery. This is because COM 1 and 3, and



COM 2 and 4, share interrupts in the computer. In other words, if you are using a device on COM 1, you can't use a device on COM 3 at the same time.

On my machine, COM 1 is taken up by the mouse and COM 2 by my GVC 28.8Kbps modem. Aware of the problem with hooking up my new ISDN modem, but in a hurry to get going, I hooked the device into COM 3.

It worked long enough to get the line synched and make a connection, but then my computer froze. I was not shocked and did not panic. I had finally found a legitimate excuse to test Quickpath's FlexPort 42 card.

The FlexPort is an ISA expansion port

that allows you to set up four COM ports and two parallel ports. The value added part of this card is the ability it gives you to determine the interrupt and addressing that the COM ports use, effectively allowing you to have four COM ports working simultaneously.

My small problem was solved by disabling COM 3 on the motherboard and installing the FlexPort with COM 3 set to use interrupt 12.

The FlexPort allows you to assign COM ports to a number of interrupts from 3 to 15 so chances are, even in a system overburdened with expansion cards such as mine, you will be able to find a way to get a communication port going.

I plugged the BitSURFR into the pertinent arm of the spider cable coming from the FlexPort, fired up the computer and away I went. Everything worked fine. No software drivers are required for the FlexPort running Windows 95. The system automatically saw that COM 3 was using interrupt 12 and quietly adjusted its settings. I now use both modems and my mouse simultaneously without any lock-ups.

The device has a suggested retail price of US\$139 and is distributed in Canada by White Knight Distributing. It does something that I like, exactly what it is supposed to—solves IRQ and address conflicts.

Note: Another way to potentially get around the problem of installing a third device on a COM port is to buy a bus mouse with a selectable interrupt setting. This can be used to free a COM port, so two modems can be comfortably assigned to COM 1 and 2. □

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Traits of successful entrepreneurs



ON YOUR OWN
by Douglas Gray

What kind of person becomes an entrepreneur? What characteristics must a successful entrepreneur have? Whether people are born with some of these traits or learn them is a topic for a good debate, but what we do know from numerous studies is

that successful entrepreneurs tend to have several important personality characteristics in common.

Entrepreneurs are often strong individualists, optimistic and resourceful, and they usually have a high degree of problem-solving ability. They also tend to be persistent self-confident, self-reliant, versatile, resourceful and have a strong desire to achieve. Additional traits include being objective, realistic, open to change, and looking for and creating opportunities.

Here are some other common traits of an entrepreneur:

Strong goal orientation

Rather than being content with reaching goals, successful entrepreneurs continue setting new goals to challenge themselves. They set clear goals that are challenging but attainable, and continually re-evaluate and adjust goals to make sure they are consistent with their interests, talents and values as well as personal or business needs.

Ability to withstand business reversals without quitting

Though perhaps disappointed, successful entrepreneurs are not discouraged by failure. They are able to use failures as learning experiences, so similar problems can be avoided in the future. They view setbacks as temporary barriers to their goals and have a strong capacity to build on successes.

Willingness to accept calculated risks

Successful entrepreneurs have a preference for calculated risks, and the ability to identify risks and weigh their relative dangers to achieve goals that are high but realistic. This is contrary to the stereotype that entrepreneurs are gamblers or high-risk takers—the risks involved are often moderate due to the amount of planning behind them.

Strong desire for independence

They have a genuine desire to be their own boss, free from external direction and control, with a sincere willingness and proven ability to be self-disciplined in sometimes isolated working conditions. They are able to organize activities to reach personal goals. Successful entrepreneurs are not usually joiners by nature. They often join only to network: to make business contacts, further their ventures, or obtain useful information to solve problems.

Ability to handle uncertainty well

An entrepreneur must have an ability to live without the certainty of job security. He or she must face many crises, take risks, and allow for temporary failures without panic. Successful entrepreneurs accept uncertainty as an integral part of being in business.

Ability to apply ideas creatively

Entrepreneurs have a strong desire to originate an idea or product, to develop something new, to be innovative, to make something happen, to imprint personality, dreams, and ideas on a concept in a unique and different way. They have powers of both observation and imagination to foresee possible market ideas.

Sense of purpose

A feeling of mission must motivate the person to go into business; the activity must have meaning. The mission may be to make an attractive profit, to sell some necessary and unique product or service, or to develop ideas or skills without the constraints of others' expectations.

Human relations ability

Successful entrepreneurs have the ability to understand and interact well with people of varying personalities and values. This is important when dealing with employees, bankers, investors, partners, suppliers, or customers and is reflected in characteristics such as sociability, consideration, cheerfulness, cooperation, and tact.

It is unrealistic to suggest that all successful entrepreneurs possess all the traits outlined. Many of the characteristics are interrelated and not all are necessary for business success, so do not be overly concerned if you feel you do not possess every one of these qualities. The key question is how significant the missing traits are to your type of business and your business goals.

You also have to fully identify and understand your personal strengths and weaknesses in the areas of management skills, product knowledge, and expertise. Once you have identified these areas, you are in a much better position to compensate for them by hiring employees, bringing in partners, or taking further training. □

Douglas Gray, LL.B., is a Vancouver-based speaker, lawyer, columnist and author of 15 business books plus a real estate investment software program. His books include Home Inc.: The Canadian Home-Based Business Guide and The Complete Canadian Small Business Guide (both by McGraw-Hill Ryerson), Start and Run a Profitable Consulting Business and Marketing Your Product (both by Self-Counsel Press).

Apple licenses Mac OS to IBM

BY JEFF EVANS



Mac™ OS

"With IBM's worldwide reach and our relationships with systems manufacturers, we're committed to proliferating the Mac OS and building upon the success of the PowerPC platform"

— Michael J. Attardo, IBM's microelectronics division

Apple has announced it is licensing its Macintosh operating system to long-time rival (and more recently partner, as in the Power PC consortium) IBM.

The deal, unveiled in early May, is not the first Apple licensing agreement—one already exists with Motorola—but it is potentially the most significant.

"With IBM's worldwide reach and our relationships with systems manufacturers, we're committed to proliferating the Mac OS and building upon the success of the PowerPC platform," according to Michael J. Attardo, general manager of IBM's microelectronics division.

"Apple has been our valued partner in defining the PowerPC chip and PowerPC platform, and today we join forces to enable the industry for Mac OS," he added.

According to Apple, "IBM has long been a strategic Apple partner, and has the global, technical and marketing strength to propel the Macintosh platform to a new, expanded role. This much-anticipated agreement instantly opens up business opportunities for computer manufacturers worldwide."

Many Mac supporters will probably welcome the move to license the Mac OS more widely, even at this late date. ▶

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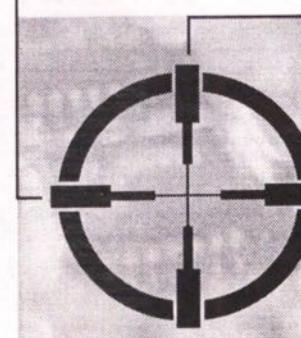
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One former Apple executive—now holding a senior position with a competing PC manufacturer—who talked with TCP recalled discussing the issue of licensing the Mac OS in 1988 with John Scully, then chief executive officer of Apple.

"I urged Scully to push for the licensing of the Mac OS to other manufacturers, and he claimed that he had strongly pleaded with the Apple board of directors to do it, but they had told him, absolutely no. 'You can't give away the religion,' they said," the former Apple executive said.

Over the past couple of years, Apple has allowed a few small manufacturers (including Power Computing, Radius and GoldStar) to make Mac-compatible PCs, but other would-be licensees have complained that the administrative process of getting approval from Apple was lengthy and convoluted.

According to published reports in the American media, the noted PC maker Gateway 2000 dutifully went through the process to become a licensed maker of Mac compatibles only to be put off in the end by Apple because of a shortage of PowerPC chips.

Gateway dropped its effort to become a Mac-compatible maker, and the incident put a chill on many other PC makers' interest in attaining a deal with Apple.

It remains to be seen if Apple can adapt to the fast-moving, rough and tumble mass market for PCs, and turn this promising connection to IBM into increased market share for the Mac OS worldwide.

Apple Canada remains a strong player at home, and Apple has had some notable success stories in key markets like Japan and the United States with its PowerBooks and PowerMac.

It still has an "Apple Advantage" in the ease of use of the Mac OS, and the quality and integration of its products, but it is facing dire competition from Microsoft and Intel.

If it wishes to reverse the decline in its share of the global PC market, Apple needs a faster, less perfectionist and less proprietary approach to its licensing efforts than it has displayed to date. □

Contact: Apple Canada, Tel: 905-477-5800. Web site: www.apple.com

Researchers also found that, contrary to the stereotype, wired households were less "wired" than the average household: they spent 10 percent less on coffee than those who didn't participate in cyberspace.

The study identified wired consumers as primarily young males with a higher than average household incomes and education, and professional jobs.

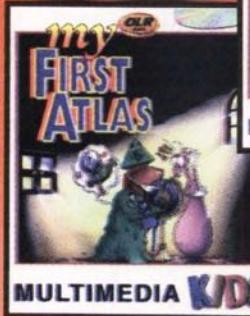
Neilson mailed surveys to 40,000 US households and received 24,000 replies—a response rate of over 61 percent. Respondents were the primary computer users in each household. □

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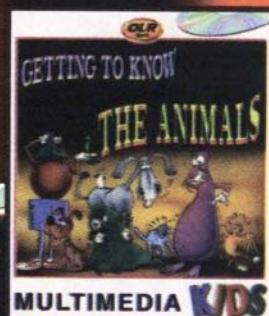


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I love my UPS

Power protection for your PC

BY CHRIS FISHER

I'm biased, I admit. I love my uninterruptible power supply (UPS), and I think everyone should have one.

I would even be happy to see them become integrated into the power-supply units of desktop computers. You could add a lot of value to a line of business-class PCs by installing an inexpensive UPS right in the case.

Having used a UPS on my home system for more than a year now, I can no longer imagine having the system without one.

The purchase of a home UPS is really a no-brainer. Units designed for personal computers can be had for about \$125, they last several years, and are almost guaranteed to pay for themselves during their operation.

You love your first

I purchased my first UPS for home use when I moved out of the suburbs to a more isolated

area. Electricity was a constant problem in my old converted cottage. A UPS solved my sporadic power problems instantly.

The unit I purchased provided enough power to supply my monitor and computer for five or six minutes, which is plenty of time to save work and shut down in an orderly fashion. Often, I would experience momentary blackouts or brownouts. The UPS corrected these problems on the fly and signaled me with a loud beep.

A month ago, I moved back into the suburbs, to a regular house on a regular street in a regular town. I didn't expect to experience the same kind of payoff from my UPS as I had done living further afield. I was wrong. In the first two weeks, my UPS intercepted and protected my work from four short power interruptions, one of which resulted from my playing with the fuse box.

It is not uncommon for a business to report revenue losses well in excess of \$50,000 for one hour of downtime. That money would buy a whole lot of UPSes

Cry out loud!

The UPS feature I like the most is probably the loud audible wail many of them make when a power problem is detected and neutralized. This charming occurrence signals that, once again, your bacon has been saved.

I have experienced several power outages in the middle of the night, and the UPS was unfailing, even when the equipment connected to it wasn't turned on. It still let out a series of load beeps until power returned. I know when the noise of the UPS brings me from my silent slumber that every digital clock in the house is probably flashing and that the alarm clock needs to be reset. The

UPS's cry sparks a pleasant reaction in me: justification, money well spent.

UPSes are not only for computers. If you have a taste for the more esoteric home-entertainment systems, a UPS is a smart investment. If you've spent a few thousand dollars on stereo equipment, you may as well look after it by spending a couple of hundred on a UPS.

You never really know how much time and money a UPS may have saved you each time it kicks in. It is difficult to know what the consequences would have been if you were sans UPS—maybe you'd lose only the

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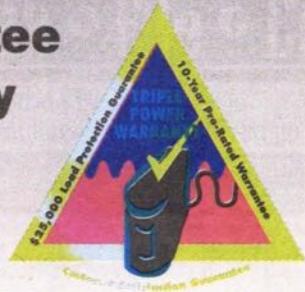
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I love my UPS

Continued from page 59

last two minutes of your work, maybe half an hour. Perhaps your computer would have been fried, or maybe nothing would have happened at all.

I'm confident, however, that the UPS I use at home has paid for itself several times over. I realize that it seems like a bit of a stretch to shell out money for a device that does nothing 99 percent of the time, but sooner or later, in the blink of an eye, you will get a return on your investment.

In today's business environment there is no excuse not to have a UPS on every critical machine. By critical machine I mean any system that performs a function important to the day-to-day operation of the company,

which should apply to almost every machine on site.

Estimates vary on the cost of a single hour's down time, but even if these less-than-empirical studies are inflated a little to support the marketing efforts of those in the power-protection business (which may or may not be the case), they are still much higher than you would imagine.

Do the math

The equation to work out the cost of one hour's downtime goes something like this: the number of computers, times the number of employees, times the average hourly earnings, plus the cost of lost business per hour's downtime, the cost of service calls, and the cost of replacing or recreating any damaged hardware and reinstalling software or data.

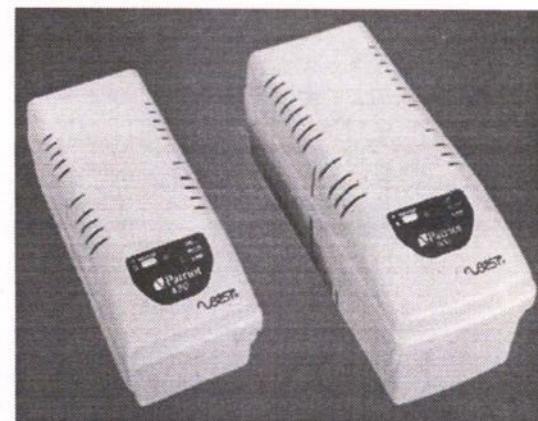
It is not uncommon for a business to

report revenue losses well in excess of \$50,000 for one hour of downtime. That money would buy a whole lot of UPSes.

Obviously, buying inexpensive UPSes for each computer would not alleviate this cost altogether, as they will only run the equipment for a few minutes. They would, however, take a considerable chunk out of the cost of downtime by protecting equipment and data and allowing the orderly conclusion and saving of tasks in progress.

Here's some truthful marketing, according to APC, the manufacturer of several popular UPSes and power-protection devices. PCs are not like eggshells. Many good-quality vendors build in strong tolerances for the barrage of power anomalies that PCs face on a daily basis.

You probably are not even aware of the frequency with which power problems hit your computer because of the protection already built into the PC. Secondary power-



Best Power's Patriot comes in a number of capacities

equipment is turned off, due to the extra voltage being dissipated through the power line.

- **Noise:** Electrical magnetic interference (EMI) and radio frequency interference (RFI) are both caused by factors such as electrical storms, relays, electric motors, and microwave radiation.

Know what you're getting

UPSes are typically used to take care of sags and blackouts, but some models also come with surge and spike protectors and power-line conditioning. Power problems can be the source of several intermittent computer glitches; they have been traced to inexplicable keyboard lockups, communication interruptions, system lockups, monitor flickering, and hard-drive and software crashes. If any of these symptoms sound familiar, you could already be experiencing the problems with power.

One last angle on buying a

UPS: most of us are risk averse, meaning that we are willing to pay relatively large sums of money to alleviate small amounts of risk. This is why the insurance industry does so well.

Even if you are risk neutral (meaning that you would only buy something like insurance or a UPS if the expected value of the loss—in the case of power protection, the probability of damage by a power problem multiplied by the expected loss due to the damage—was greater than the cost of the insurance), however, you should give serious consideration to buying a UPS.

In a nut shell, if you would buy any insurance other than that which you are mandated to have by law, you should, upon consideration of the facts, buy a UPS for your computer.

I guarantee you'll learn to love it. □

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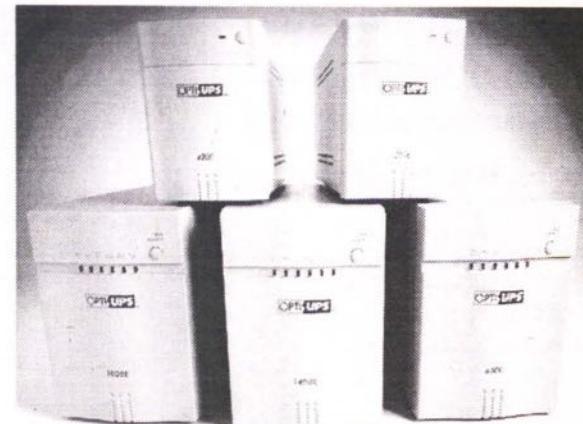
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protection devices are needed for the "out-of-bounds" type of power events. These events fall into several categories:

- **Sags:** A short-term decrease in the voltage level. Sags are caused by the start-up demand of an electrical appliances. Ever noticed the lights flicker when the refrigerator motor kicks? Steady periods of lower voltage are more commonly known as brownouts. Brownouts can be caused by the providers of electricity who may have to lower voltage levels to meet demand at peak times.
- **Blackouts:** Hey, where'd I put those candles?
- **Spikes:** A rapid, dramatic peak in voltage, caused by such things as lightning strikes, or when utility power is restored after a blackout.
- **Surges:** A short-term increase in voltage, which may be caused when high-powered

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Time-to-battery warning (Min:Sec)	6:36	41:12	39:54	18:48	44:28	N/A	N/A	17:58	43:45
Time to total failure (Min:Sec)	7:55	43:34	41:28	21:22	49:06	20:11	22:18	20:16	44:54
Maximum capacity (VA,W)	250, 150	700, 450	660, 400	420, 260	600, 375	450, 280	450, 280	400, 240	650, 410
Dimensions centimetres (WxDxH)	13.7x42x6.35	13.7x35.8x15.7	13.2x39.3x16.5	12.7x29.2x12.7	11.4x39.8x16.5	11.7x37.5x16.25	11.7x37.5x16.25	10.9x26x18.5	13.7x42.6x19.5
Dimensions inches (WxDxH)	5.4x16.5x2.5	5.4x14.1x6.2	5.2x15.5x6.5	5x11.5x5	4.5x15.7x6.5	4.6x14.8x6.4	4.6x14.8x6.4	4.3x10.3x7.3	5.4x16.8x7.7
Weight in kilograms (pounds)	3.2 (7.0)	13.1 (29)	12.7 (28)	5.9 (13)	11.3 (25)	10 (22)	10.9 (24)	5.8 (12.8)	13.0 (28.7)
Outlet receptacles	3 *	4	4	2	4	4	4	3	4
Network surge suppressor	Yes	No	No	No	No	Yes	Yes	No	Yes
PC serial interface	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Price	US\$179	US\$549	\$779	\$259	\$699	\$419	\$525	\$299	US\$459
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* This unit contains six outlets, all of which act as surge suppressors, but only three of which provide battery backup

Testing the UPS

When it came to testing the uninterruptible power supply (UPS) units, we had to decide on what approach we would take. Open up the manual of any one of these units, and you'll quickly realize why we've opted to make the comparison chart simple and easy to understand.

By looking at an actual UPS, most people would never imagine the complexity and ingenious design behind it, as is evident by the vast amount of technical information found on the specification sheets of the individual products.

To test the UPS, we conducted a simple test using a PC with the following configuration: a Pentium 133 MHz processor, 16 MB of RAM, 1.08 GB HD, a Trident PCI video card, 6x CD-ROM drive, 1.44 floppy, an internal 28.8Kbps faxmodem, an SB-16 sound card and a 17" monitor. The maximum power consumption on the PC itself was 200 W, and the monitor was an additional maximum of 120 W. The system was started with Windows 95, and once the boot process had completed, we cut the power to the system and let the various UPS systems do their jobs.

We kept track of two times. The first was when the UPS warns you that its battery is running low, the second was when the UPS

would actually shut itself off.

Every UPS is rated for a certain maximum amount of power which it is capable of supplying. Technically speaking, this can be represented in two ways. The most common unit used to identify power consumption is watts (W). However, electrical engineers decided they'd rack their brains and come up with another method known as volt-amps (VA). In all fairness, both units mean the same thing, namely how much power is being consumed by a given device.

Some of the products listed have support for an RJ-45 network connection. These connectors will suppress any surges (sudden increases in power) which may otherwise

destroy sensitive hardware. This is more of a concern in an office environment, and not as much for home personal use, unless you're the type that has your entire house wired from corner to corner, wall to wall.

If you're into monitoring everything that goes on around you, most of the products we looked at have a serial interface which allows constant communication between your PC and the UPS, and allows you to keep an eye on everything from current voltage levels to the temperature inside the UPS itself.

Indeed, as you can see from the differing features, prices and capabilities, there is a UPS for many different types of applications.—Steve Halinda

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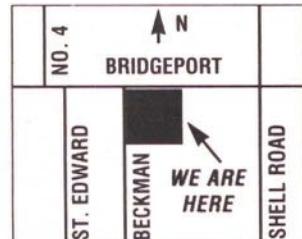
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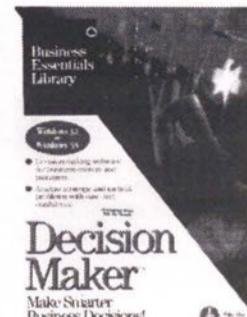
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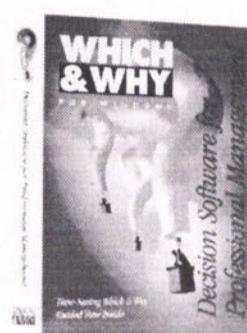
Deciding how to decide

A look at decision-making software

BY ROD LAMIRAND



Title:
DecisionMaker
From:
Palo Alto
Software
Suggested
Retail Price:
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Title:
Which & Why
From:
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Software Corp.
Suggested
Retail Price:
\$349

grams is to allow a considered, informed, calculated decision about various possibilities and to have a documented explanation of that decision for analysis and/or later evidence of research and reasoning.

Choice One

DecisionMaker is a small, one-disc, Windows 3.11, Win 95 or Macintosh program that will run just fine on 4 MB. The software installed on my machine easily and quickly and ran without trouble. There is an adequate Help file and a manual with some explanation and a number of examples.

The interface is very simple and straightforward, once the user has spent some time understanding how to organize a problem and assign values. DecisionMaker is primarily aimed at business use. If you are thinking of expanding your company, hiring another partner or any of dozens of other decision-making plans, then DecisionMaker wants your business.

Here is how it works. The program is based on using a branching tree where you enter decisions, known and unknown events and other information. After you have understood and set up a proper representation of the problem you must step through the tree and make educated guesses as to the likelihood of certain events happening, or a best, and worse, case for each scenario.

When you have done that, the software will analyze the data and choose an overall recommendation based on the data you entered. You can view the data as a chart, scatter graph or numerical tree. Also available is a risk-attitude tool which will allow you to select from a five-point scale ranging from Risk Seeking to Risk Adverse. This may alter the program's recommendation depending on how close the various scenarios are.

I found the program to be useful for business scenarios, but it felt limited for other uses. Understanding the numerical rating system takes a bit of work, but it is logical when understood. There is good value here because of the

low price, but you get what you pay for. When I set up a scenario to answer the question of which program would I buy, DecisionMaker recommended the competition.

Choice 2

Which & Why is a four-disc Windows 3.1 or higher program that I reviewed under Win95. It uses 13 MB of disk space and runs in 4 MB RAM. The product advertises itself as "decision software for professional management."

A broader program than DecisionMaker, Which & Why can handle almost any type of decision. At its root, this software uses the same type of branching tree, assigning of probabilities and product recommendation as the other program. However, the interface is much more functional and elegant. The model view shows us a series of four vertical columns and selecting one button displays the branches beneath it in the next column. The charts and graphs that can be selected to compare different items are very cool.

For example, let us say that you are buying a house. You could input hundreds of particular details about each house, if you were so inclined, and compare them as a total or in parts. A line chart of their differences would make it easily apparent where they differed. In this case you would not even be forced to set up the categories—Which & Why has already made up a model for comparing houses; just as they have for buying a company jet, choosing a university, deciding on a corporate relocation and about 100 other situations.

If you do have to set up a model from scratch, the brainstorming utility will help you get moving in minutes. As well, once you enter various items that must be taken into consideration, you simply drag and drop them onto, or beside, each other to make the model.

The Pairwise comparisons are very useful, allowing you to simply state that one thing is more important than another. As you go through all the details the software will keep track of which items are more important, and even by how much, before it makes a recommendation. Are some things a must? Fill out the Must Haves and it is done.

The decision

Which & Why is a well thought out, very useful program that has many more features than I have mentioned here. If you want to make the right decision, and have the documentation to show that you looked at, and considered, every relevant detail, Which & Why is the right choice for you. Which & Why recommended itself as the program that I should most likely buy if I were purchasing such a product. □

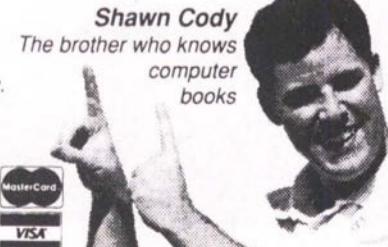
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Shawn Cody
The brother who knows computer books

TV the loser, print the winner in Internet evolution

BY BOB WOODS

NEW YORK, N.Y. (NB) — As more and more people move away from the TV screen to the computer screen, an older form of media is actually picking up readers, a new study from Coopers & Lybrand Consulting shows.

The survey, called *Electronic Access '96*, shows the Internet and its World Wide Web component are taking away TV viewers, but are boosting the sales of print media. In the broadcast medium, 58 percent of Internet users said the time they spend online is shifted directly from time previously spent watching TV.

Internet usage is not taking away from the print medium, the survey said. In fact, people are spending more money on Internet-related books and magazines than in making electronic purchases on the Net.

Thirty percent of those surveyed said they

read magazines or books on the Internet, and almost two thirds of those who have looked at an online publication consider it a complement to a paper version, rather than a substitute.

Three distinct Internet "users" are emerging, the survey said, with 54 percent of them being "browsers." This group seems to have primary interests of browsing, general information, e-mail, and databases.

"Communicators," or 22 percent of online users, tend to be well-educated males who have used the Internet for at least two years, and are very comfortable with technology.

The third group, "Information seekers," make up 24 percent of the online population. Information seekers are less technologically adept and are likely to have young children.

When it comes to learning about Web

sites, 39 percent use traditional media, 44 percent depend on word of mouth, and 32 percent stumble across sites while they are browsing. Only 10 percent learn of Web sites through links from other sites, the survey said.

Concerns about security are stifling electronic commerce on the Web, with 80 percent of online users indicating they are concerned about the safety of financial data on the Net.

In general, more than one third of American households and 58 percent of sur-

vey participants have at least one computer. Of the study participants who have computers, 29 percent use the Internet and another 34 percent say they are somewhat likely to use the Net this year.

The survey is based on telephone interviews with 750 people who were a subset of 1,600 people originally interviewed in 1994 for a similar study. The 1,600 interviewees projected a 41-million American household population with incomes of \$35,000 and more. □

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Continued from page 54

(At the other end of the Ready line, the 9619 will run you \$4,179—post price reduction—and give you a Pentium 166 with 16 MB EDO RAM, a 2 GB hard drive, 2 MB video RAM, the same 28.8Kbps fax/modem, a 6x CD-ROM drive, a microphone and 16-bit sound, but with a couple of decent 20-watt speakers.)

When I opened the case, the first thing that struck me was that the four ISA and two PCI slots were connected to the motherboard by means of a perpendicular riser card inserted into a dedicated motherboard slot.

The next thing that struck me was that the fax/modem was the only card occupying any of the expansion slots. Which means, I'm afraid, that all the I/O and the sound card are integrated onto the motherboard, so you have no choice about either (though not unusual on a PCI board I/O-wise, I would ultimately prefer to be able to pull the sound at my leisure).

The only other unusual inner observation was finding two fans—one integrated into the power supply and another for cooling the actual guts, which is a very good sign that NEC is thinking ahead.

On the outside, though, I found something that I still think is gratuitous but know is bound to be the norm at some point in the future—a remote-control receiving window

and, of course, remote hand set. Adding yet another clicker to the household collection, you can use the hand set to control your CD-ROM when listening to audio CDs, operate the telephone (answer dial, and redial) and telephony (voice greetings, auto answer, and message playback) features of your fax/modem—the latter are the increasingly popular functions that are killing the answering-machine market.

Strangely enough, however, though the remote-control feature is apparently infrared (IR), I couldn't find any documentation to indicate whether IR links can be established with peripherals equipped likewise. It would be a logical extension of the technology. And it might do it. I just couldn't prove it.

Finally, along for the ride is a genuinely impressive array of free software, far too much to list here. Some of the highlights, though, include Windows 95, NEC's own Merlin multimedia tutorial (nothing to do with Merlin, the code name IBM is using for the next version of OS/2), MS Works, Encarta, kids stuff, games, six separate packages for your sound card and a cornucopia of utilities for your fax/modem and other hardware. □

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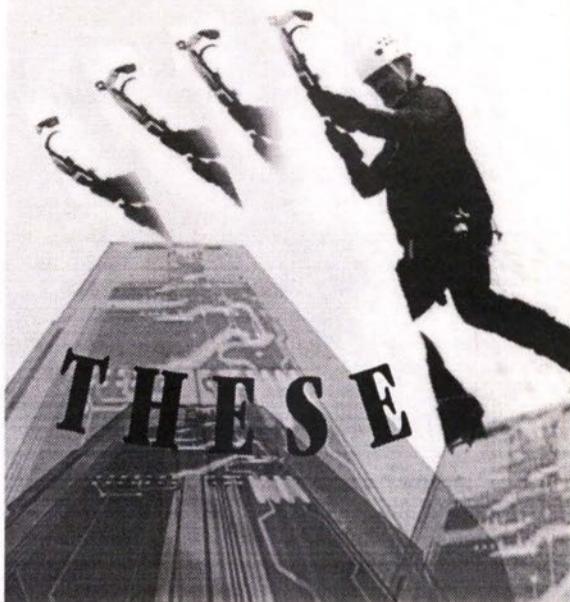
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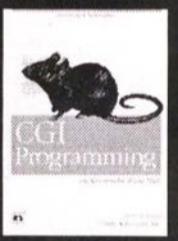
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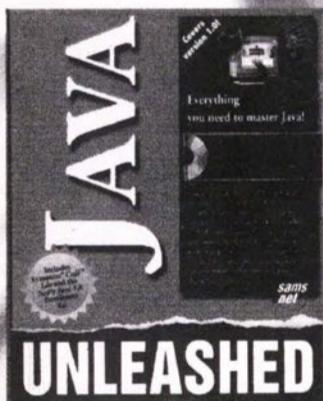
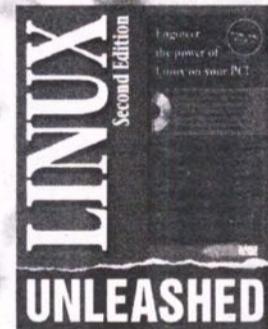
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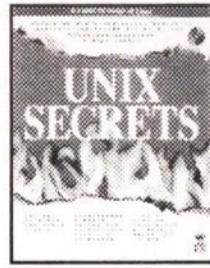
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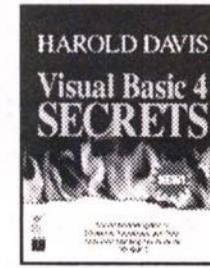
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A guide to your PC's inner workings

BY KEITH SCHENGILI-ROBERTS

Fix Your Own PC, 3rd Edition

Author: Cory Sandler
Publisher: MIS Press
Price: \$41.95
ISBN: 1-55828-422-2
 Softcover, 462 pages, 1996

PCs invite tinkering. More to the point, to get many PCs to work, people are often required to "open up the hood" and be willing to poke their hands into the machine's innards. The documentation for most hardware components is written in its own special language, making it a real challenge for somebody who simply wants to insert a new modem or video card into their PC.

Its troubleshooting sections may be well worth the price of admission on their own, and the book has lots of good advice on how to keep your aging dinosaurs in good condition and what to look for when upgrading

That's where books like *Fix Your Own PC* fit into the picture—they are there to help you sort out the mass of circuitry and components in a PC into something that you feel you can work with.

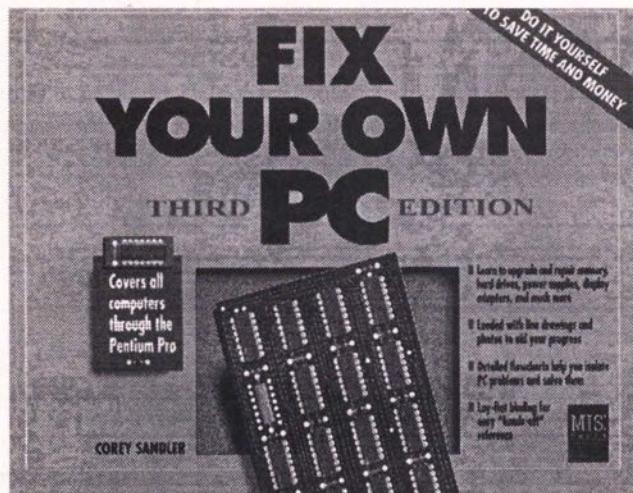
There are few titles in the computer book publishing industry that go through several editions. Technology changes so fast, and there are so many titles for readers to choose from, that constant revision of a single title is usually a good sign that the book is worth getting.

This is the case with *Fix Your Own PC* by Corey Sandler. It is a good, solid book on dealing with your PC's hardware, now in its third edition. The book takes a straightforward, no-nonsense view of things—it tells you what components are good for your PC, and what will rapidly become obsolete.

The book delves into the basics of motherboards and bus designs, and with that foundation in mind, goes on to cover such things as using hardware diagnostic software, installing Pentium upgrade chips, updating your hard drive, adding multimedia to your system and more.

While it will not be thorough enough for professional technologists, like systems administrators, it is certainly enough for the rest of us who will replace, or are contemplating upgrading, our computer system over the course of the next year.

Its troubleshooting sections may be well worth the price of admission on their own, and the book has lots of good advice on how



to keep your aging dinosaurs in good condition and what to look for when upgrading.

Unfortunately, there are some basic economics that may be slowly working against books like this. This book is really made for do-it-yourselfers, who are willing to upgrade their PCs themselves rather than buying new machines. Problem is, it is often cheaper to buy a whole new system than buy individual components, even over a length of time.

Despite its drawbacks, Windows 95's Plug and Play standard will undoubtedly make installing new components easier over time. While PCs may invite people to tinker with them, few people really want to bother if they can help it.

This is one of the better computer books you can get if you like to take a hands-on approach to hardware. The book is a bit pricey at \$41.95, but if you do a lot of tinkering with your PC, it will likely pay

for itself in terms of the time saved and hassles avoided. □

Rating:

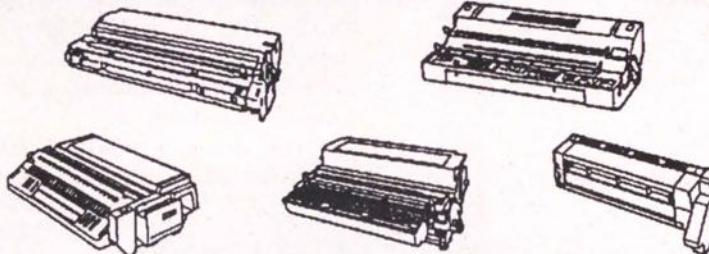
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Weaving your own Web site, Part X

Microsoft Internet Explorer HTML tags, Part II

BY KEITH SCHENGILI-ROBERTS

Last time, we looked at just two of the hypertext markup language (HTML) tags that are (or were) specific to Microsoft's Internet Explorer—the <MARQUEE> and <BGSOUND> tags. This month, we are going to look at a few other Internet Explorer specific tags, that will help liven up the text and add some color to your tables.

Font-o-rama

Netscape started using the tag as an alternate way of changing the size of text without having to resort to using the header (<H1> ... <H6>) tags. Microsoft takes the idea of the tag to its logical conclusion by specifying the specific font and color that appears on your Web page when viewed through Internet Explorer.

You can use Internet Explorer's extensions to the tag to good effect to emphasize particular sections of text on a Web page. Any font name will work, but it needs to be the actual name of the font installed on the user's system. There is no way you can determine what fonts are resident on a user's system, therefore Microsoft has built in the ability to "cascade" several font names, by specifying multiple fonts separated by a comma, as in the following example:

```
<FONT FACE="ARIAL, HELVETICA,  
GENEVA, SWISS, SANS SERIF"></FONT>
```

Internet Explorer uses the first font it finds from the list that it locates on the user's system. The example provided is a good example of common sans-serif fonts found on many different computing platforms, and will almost certainly find a match on Windows and Mac systems.

There are about five different font types that are reasonably universal: Arial, Times Roman, Courier, (MS) Sans Serif and WingDings. The last one is not particularly helpful unless you want your page to display gibberish characters to anyone viewing it with Internet Explorer.

You can also change the color of text by using the COLOR attribute. This works the same way as the <BODY BGCOLOR> tag—you can either specify the font color using a hexadecimal number in the usual rggbb format, or specify it by colorname. To display some san-serif text on a page in red, you could use the following:

```
<FONT FACE="ARIAL, HELVETICA"  
COLOR=FF0000>This is red text.</FONT>  
or  
<FONT FACE="ARIAL, HELVETICA"  
COLOR=RED>This is red text.</FONT>
```

For the record, the 16 colornames are: black, silver, gray, white, maroon, red, purple, fuchsia, green, lime, olive, yellow, navy, blue, teal and aqua.

Colorful tables

Netscape Navigator was the first browser to incorporate tables, but Internet Explorer adds a few interesting extensions, which allow

Web authors to further emphasize their tables.

Using these extensions, you can align tables on a page, add a caption to a table, or change the background color of an individual cell.

Using the ALIGN attribute in conjunction with the initial <TABLE> tag, you can now display your tables on either side of your Web page. Use <TABLE ALIGN=LEFT> to have your table appear on the left side of the page, or <TABLE ALIGN=RIGHT> to have it appear on the other side.

To add a caption to your table, use the separate <CAPTION> ... </CAPTION> pair of tags. You can place your caption above or below the table by using VALIGN=TOP or VALIGN=BOTTOM respectively, and use ALIGN=LEFT, RIGHT or CENTER to draw the caption flush left, right or centered with respect to the table. Note that this tag must be used in conjunction with a table.

There are a number of color options that can be used within tables. One is the BGCOLOR attribute, with which you can set the background color for a cell, row or the entire table by specifying the font color using the hexadecimal rggbb format, or by colorname.

You can set an independent color for the border by using the BORDERCOLOR attribute and specifying a color value for it. The following example shows a table with a teal background color, a yellow border, its first row marked in blue, and the cell containing the letter "E" in aqua:

```
<TABLE BORDER BGCOLOR=TEAL BOR-  
DERCOLOR=YELLOW>  
<CAPTION ALIGN=CENTER  
VALIGN=TOP>From A-F</CAPTION>  
<TR BGCOLOR=BLUE>  
<TD>A</TD>  
<TD>B</TD>  
<TD>C</TD>  
</TR>  
<TR>  
<TD>D</TD>  
<TD BGCOLOR=AQUA>E</TD>
```

```
<TD>F</TD>  
</TR>  
</TABLE>
```

That's not all though. By using BORDERCOLORLIGHT or BORDERCOLORDARK you can control the colors that are used to add the 3D effect to the frame of a cell. BORDERCOLORLIGHT is used to specify the 'highlight' color, and BORDERCOLORDARK is used for the 'shadow' color. So in the following example:

```
<TABLE BORDER BGCOLOR="BLUE" BOR-  
DERCOLORDARK="NAVY"  
BORDERCOLORLIGHT="TEAL">
```

not only sets the background color of the table to blue, but by altering the highlight and shadow colors for the cell frames, maintains the blue tone even in the 3D border colors.

With the release of Netscape Navigator 3.0, it is now possible to use BGCOLOR attribute in Netscape tables, but none of the other Internet Explorer attributes seem to have been adopted.

Capital dropping

One other nice touch you can add to the display of text on your Web page with Internet Explorer tags is to add drop caps. A drop cap is when the first character of a paragraph is larger than the rest of the paragraph, and its baseline extends below that of the first line of the paragraph, which also results in the second line (or more) of the text being indented.

Many drop caps you see on Web pages are image files, but since images are generally loaded after text, you can end up with a Web page that seems to be missing the first letter of its paragraphs, until the image finally loads. There is no <DROP CAP> tag in Internet Explorer, but you can get the same effect by using a combination of the and <TABLE> tags.

The idea is to create a table aligned flush left which has no border and con-

tains a single cell for the drop letter. With that in mind, you can create the following code for a drop cap effect:

```
<TABLE ALIGN=LEFT CELLPADDING=0  
CELLSPACING=0>  
<FONT SIZE=+3>T</FONT>  
</TABLE>his sentence begins with a drop cap.
```

You can take things further and add a background color, change the color and type of font:

```
<TABLE BGCOLOR=SILVER ALIGN=LEFT  
CELLSPACING=0 CELLPADDING=0>  
<TD><FONT FACE="HELVETICA, ARIAL"  
COLOR=FUCHSIA SIZE=+3>T</FONT>  
</TD>his sentence begins with a drop cap.
```

You can also add italic and/or bold tags to further emphasize the drop cap.

For more information on various ways to create drop caps, see Robert B. Hess's excellent Drop Caps page at <http://www.microsoft.com/interv/author/dropcaps.htm>

Future developments

There are still more tags that could be covered in this article, such as the <AREA> tag used with image maps, fixing a watermark onto a page, setting the left margin for a page and several others.

These and the characteristics of all of Internet Explorer's tags can be found on a handy document called the "Complete List of HTML Tags" at <http://www.microsoft.com/ie/author/htmlspec/i20html.htm>.

Meanwhile, the people at Microsoft are busy working on the next version of Internet Explorer. One of the biggest changes you can expect to see in Internet Explorer 3.0 is support for cascading style sheets.

These sheets provide an easy mechanism for adding layout and visual formatting information to a Web page, but will still provide a viewable Web document to a browser capable of understanding only strict HTML 2.0 tags and attributes.

You will be able to specify character styles (i.e. boldness, italics, alignment, and font size), select fonts, and set the color for both the text and the background color for individual elements on a page. You will also be able to display bitmap images beneath specific text, or control the vertical and horizontal layout of individual page elements. Expect another article or two on this topic when Internet Explorer 3.0 is released. □

Thanks go to Robert Hess, software design engineer with Microsoft's Developer Relations Group, for help with this article. Next time: Inserting Java applets into your Web pages.

Keith Schengili-Roberts welcomes any comments, suggestions or HTML tips and tricks you may have. You can email him at: kschengl@interlog.com.

Web evolution

Technology is changing most rapidly on the World Wide Web

BY JAMES MACFARLANE



ComTalk

While the Internet may be the greatest thing since the toaster, it's really the toast that matters. Fortunately, toast is evolving very quickly.

There's no doubt that science and technology are causing rapid change. There is no more obvious indicator of this change than the computer industry. We all know that no sooner do we buy a computer, than there's a faster, better one on the market. But realistically, computers only drastically change about every four years as new generations of central processing units (CPUs) and bus technologies hit the market.

Software, on the other hand, changes more rapidly because it doesn't depend on manufacturing of hard goods, nor is it dependent on the invention of new semiconductor technologies. New versions of software come out about once a year. So a software generation is much shorter than that of the computer hardware.

But even software is evolving at a slow pace compared to the Web.

The Net isn't changing; the Web is

If you look at the main applications of the Internet—mail, newsgroups, ftp and telnet—they've changed very little since the Internet began. Sure, they may have been given prettier faces with graphical client software, but the World Wide Web is where all the action is.

The Web reinvents itself about every three months. It is a never-ending succession of upgrades, plug-ins and news features. Keeping up with it all, even for me, has been a lot of work. Compare a three-month generation cycle to any product in any industry and you can understand that the Web is evolving at a breakneck pace. Here are some of the things that have gone on (remember, most of this has happened in the last year):

- The Web used to do three basic things: display formatted text, display images and include hypertext links to other Web pages. There were no fonts and no colors. It was basically a grey screen with black text and some images.

- Web pages were static: once they were put online they didn't change until someone changed them. Something called CGI (common gateway interface) allowed people to perform simple animation and to link their Web pages to databases and other "live" data. All Net search engines rely on CGI scripts to do their work.

- Netscape added a few extra features, which weren't part of the hypertext markup language (HTML) specification, but they were such good ideas that everyone adopted them. They added the ability to display background images or "wallpaper" on a Web page, and they also added the ability to create tables to perform more complex layout tasks.

- Other companies started creating "helper" applications. These weren't things that were directly tied to the Web specifications directly, but they used the Web as a handy interface to do new things. One of the first was Real Audio. This was a special client/server application that allowed audio signals to be transmitted in real time over the

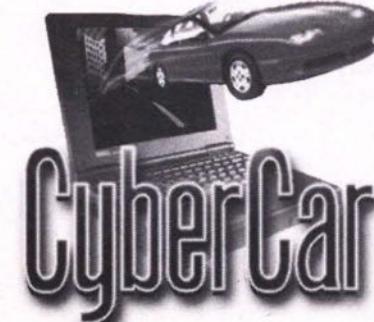
Net. This allowed audio attachments and music to be added to Web pages without requiring the user to download huge WAV

files. Today, many radio stations are broadcasting on the Net using this technology.

- HTML has its limitations on how it can

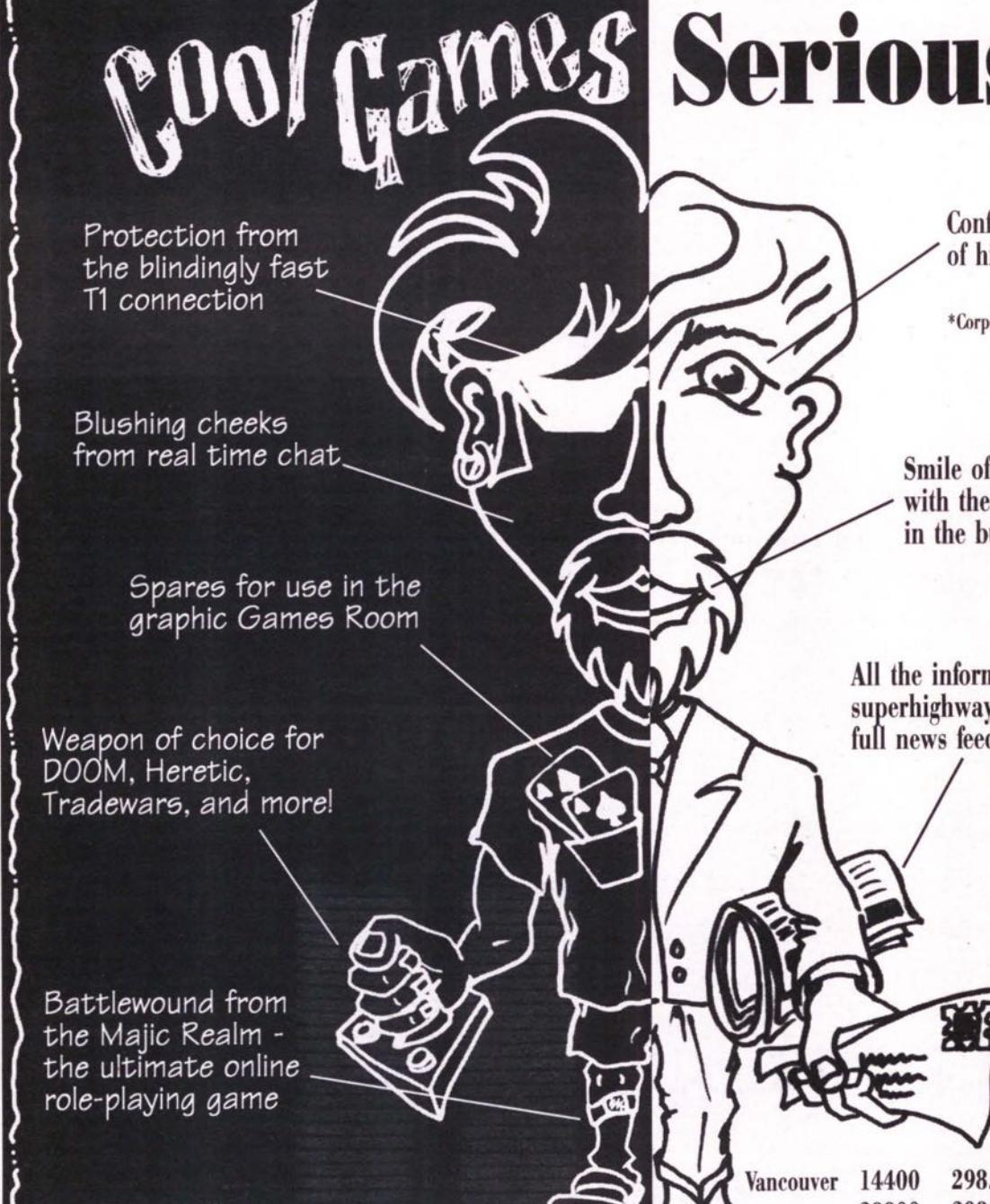
format text. Adobe created a work-around called Acrobat. It allowed you to "print" doc-

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uments from any application to a special file format called PDF. These PDF files could be viewed by a freely available viewer. The PDF files looked very much like the original documents. Today, many companies are publishing their documents online in this format.

• What HTML does for flat documents, VRML (virtual reality markup language) does for 3D. It sends coordinate information to a VRML browser, which then renders 3D polygons on the user's screen.

• Once, one of the major drawbacks of putting documents on the Web was convert-

ing them to HTML. This usually had to be done painstakingly by hand. Then, Microsoft came out with a collection of free viewers that allowed people to view files in their native format. For example, if you click on a link to a Microsoft Word document on someone's Web page, and have a copy of the Word viewer on your machine, you can download the file and view the document, just as it would look inside Word, and you don't even need to have a full copy of Word to do it. Viewers became available for all Microsoft Office applications.

- The most important development on the Web was the creation of Java by Sun Microsystems and Netscape. Java is a platform-independent development system that can be used to build online and stand-alone Internet-aware applications and embed them in a Web site. Java promises to transform the Web into a global shared workspace. Microsoft and Netscape continue to add new features to their browsers for font support, and something called frames that allows a Web page to be a container for multiple sub-documents.

- New technologies, like Web-based tele-

phone and chat services, are built-into the latest version of Netscape.

- New plug-ins, like Macromedia Shockwave, allow for a multimedia authoring approach to site design, providing a more robust and flexible method of designing rich online material.

- Many companies are working towards standalone network computers that have no operating system, but instead use Java and a Web browser to provide all functionality and applications via the Web.

That's just a sampling of what has been going on. Never mind the advancements of the content of the Web and what all this functionality has allowed people to do, this is just the nuts and bolts. □

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Why cats paint

Why cats paint is the topic of the Museum of Non-Primate Art Web site. Not only do cats paint, but they like to paint. There are actually special cat artistic aptitude tests, cat painting products and information about great cat artists.

Sound wonky? A hoax? My cats did not offer an opinion on the matter. The site does have a "spot the fakes" area for those interested.

If you're really interested, you can buy the book, *Why Cats Paint: A Theory of Feline Aesthetics*, which is sold through the Web site. The book is by Burton Silver and Heather Busch US\$16.95.

The book abstract describes: "Should the marks a cat makes be treated as art, or are they simply forms of territorial behavior? This book is an unprecedented photographic record of cat creativity that will intrigue cat lovers and art lovers alike. As far as we know, no theory of feline aesthetics has yet been presented, at least not with such remarkable clarity and thorough documentation. Now, many aspects of heretofore unexplained cat behavior can be understood within the familiar context of art." —JM

Contact: Museum of Non-Primate Art
Web site:
<http://www.netlink.co.nz/%7Emonpa/index.html>

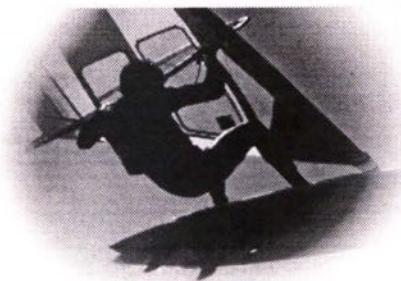


The Polly Ploy, 1993
Scented acrylic on colored card, 64x84cm.
Peggy Giacometti Collection, Venice.
Artist: Tigger, a three-year-old tabby, works with great care to produce exquisite little expressionistic portraits of the white cockatoo with whom she shares her home. She was placed second in the Zampa d'Oro (golden Paw) award at the Esposizione dell'Arte Felina in Milan in 1993 for her very complex work in white entitled Polly With The Kettle On.

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From Alta Vista to Yahoo

Searching the World Wide Web

BY KEITH SCHENGILI-ROBERTS

One thing that is obvious to anybody who has been on the World Wide Web for more than a few minutes is that it is huge.

There are literally millions of Web pages out there dealing with a myriad of subjects. You can find pages dedicated to your favorite TV star, check out the local movie listings, download free software, discuss controversial topics with others, and discover scores upon scores of pages devoted to all sorts of subjects you could possibly think of.

So, how do you find Web pages of interest to you on the Web? This is where Web search engines and directories come in. These are large database systems kept at a Web site that contain links to the millions of sites on the Internet. A Web search engine lets you search for things by keywords, while Web directories contain information on Web sites in a tree-like structure, with various headings and sub-headings of common subjects and topics, many of them linked across subject categories.

The introduction of advertising dollars has made a big difference to the world of search engines. By their nature, search engines draw large numbers of people to their sites daily. This has led to the development of the now ubiquitous "banner ads" appearing at these sites. Users suffer a slight inconvenience by having to view them, but in return, get to use the search engine for free, which is not a bad arrangement.

Competition for Web-bucks is increasing, and several new players have appeared on the scene recently. Web surfers can only benefit from this development, but the problem remains—where to start searching?

If you actually do a search for "search engines" or "searching the Web" at any search engine site, chances are you will get dozens of potential places to visit. The best way to start is to check some of the big ones out, and, find out what they do well and know their weaknesses, and begin any search based on the type of information you are looking for.

Alta Vista

<http://www.altavista.digital.com/>

Alta Vista is a relative Johnny-come-lately in the world of search engines, but it is easily one of the best around. Designed by Digital Equipment Corporation and using its hardware and software exclusively, this site has the best claim to having the largest single Web index.

Alta Vista was the result of a project started last summer at DEC's Research Laboratories. It went public Dec. 15. While there are no ads at Alta Vista, the whole site is essentially a big advertisement for the DEC equipment used to create the site—and it reflects positively on DEC.

At the time of writing, 22 million Web pages containing more than 11 billion words

are lodged in its index. Users look for Web pages or Usenet postings through a keyword interface. It is one of the zippiest of the search engines around, with the 64-bit addressing system of several DEC Alpha machines storing nearly 6 GB (that's gigabytes) of Alta Vista's 33 GB word index in its main memory, and handling hundreds of requests simultaneously without a hitch. You do not have to wait long to get a response at Alta Vista.

The user interface is very simple—type in a keyword or keywords in a field, click the Submit button, and a few seconds later the first of what is often hundreds of positive "hits" from your keyword appears. All of the responses are rated in terms of the closest match to your keywords, and you can opt to have them listed in a standard, compact or detailed format to further refine your search.

Alta Vista also lets you use boolean operators like AND, OR and NEAR to help you narrow things down. One of the problems of many other Web search engines is that the data they contain are often outdated. Alta Vista claims to have the fastest Web "spider" program, which fetches new information about the Web at the rate of 2.5 million pages per day.

One feature Alta Vista has that—until very recently—no other search engine had is the ability to search for all of the other pages that link to your Web page. Alta Vista essentially contains the entire Web on its computers, so it was not a problem to add this feature that not many people seem to know about: simply type "link:[http://\[your Web page URL\]](http://[your Web page URL])" in the search field and it dutifully returns of all of the Web sites that link to yours.

Alta Vista contains a host of superlatives—fastest, most Web pages indexed, most frequently revised and updated—but does that make it the best? It all depends what you are looking for. Beginning users may find search engines like Alta Vista a bit daunting—especially if they are unfamiliar with methods of narrowing down their search terms to return a manageable number of pages to check out. But Alta Vista is the place an increasing number of experienced Web searchers go to for information—currently it gets about four million requests daily.

Excite

<http://www.excite.com/>

Excite is another relative newcomer to the roster of search engines, but it intends to take the Web by storm. Excite wants to be your one-stop virtual convenience infomart. In addition to a sizable index containing over 11.5 million pages worth of information, it has reviews, news and things to amuse.

At Excite you enter a concept or keywords to search, and it returns any and all information it finds. When Excite searches for new Web pages, its "concept-based" technology

tries to determine what the dominant themes or terms are on a given page, and then tries to summarize it for search purposes.

Excite also accepts various boolean operators such as AND, OR, NOR and NOT to aid in your search. You can also set wholly inclusive or exclusive search terms, so that Monty+Python returns only documents containing both words, while Python-Snake excludes any pages that contain both words. The search strategies seem to be well thought out, but in the end, the search results are really no better and no worse than any of the other Web search engines of its type.

The way Excite automatically sums up the information it finds often leaves something to be desired, and unlike the majority of other search engines, it does not retain a cache of your search request. So if you check out a site, don't like it, and hit the "previous" button, don't expect your search results to be waiting for you.

But that's not all the services Excite offers. Taking its cue from Magellan, Excite has hired "professional journalists" to search for and review sites that might be of interest for its audience. Excite has amassed a database of over 50,000 Web site reviews. You can also do searches on Usenet, and read the latest news stories from a Reuter news feed that is updated every hour. There's also a weekly cartoon from Bill Mitchel, and columns on various subjects.

Excite's recent articles included advice to people whose computers have contracted a virus, how to survive an audit by the Internal Revenue Service in the United States, a review of the Coca Cola site, and finding information about Iceland on the Web.

Excite seems to be into giving its audience a smorgasbord of info. Is Excite an all purpose infomart or a case of infoglut? That's for you to decide.

Inktomi

<http://inktomi.berkeley.edu/query.html>

Inktomi is part of research project being conducted by the University of California at Berkeley into distributed computing. It uses four Sun SparcStation 10s computing in parallel. And the idea is that, as the Web grows, it will be able to keep pace by simply adding more machines to the system.

That's all very well, but it is not the fastest Web search engine, and has all of the rough-edges of a pilot project.

While it too has a sizable database of Web pages, it has a clunky-looking interface, and is not as user-friendly as some of the other search engines. In terms of its interface, it looks a lot like the state of the art for Web search engines a year ago.

Inktomi also makes some assumptions

that users may not always appreciate. It removes common endings, such as "ing" and "ed", from any word you enter as a search term. So if you enter a word like "hunting", you will get matches on "hunted" and "hunt" as well. This can have the effect of unnecessarily expanding your search terms, and can be annoying if you are doing a search on a proper noun.

The name Inktomi comes from a spider from Plains Indian mythology that brought culture to the people. He was also a trickster character, and became a representative for the underdog.

This is only a research prototype that has a lot of room for expansion, and has a good technological underpinning. It may not be much to look at right now, but this may change with time (and substantial commercial involvement).

Lycos

<http://www.lycos.com/>

Of all of the Web search engines out there, Lycos probably ties with Yahoo in doing whatever is necessary to attract people to its services.

Lycos is one of the older Web search engines, and it has used this time to soften some of its rough edges. It has long been a popular spot for people who are searching for information on the Web, and thanks to its aggressive approach in its effort to give its audience what it wants, will continue to do so for some time to come.

When Lycos first started, it was a project of Carnegie-Mellon University's computer science department. It had a user interface that only a computer scientist could love, but it was usable, and would find information that you couldn't locate on other search engines. Add some corporate bucks and people versed in human-computer interaction and design, and what was a good search engine became much better. It boasted the largest catalog of Web pages to search through, but to some extent, technology has superseded Lycos' approach to cataloging the Web.

Back in the beginning, main rival Yahoo had (and still has) a search engine based primarily on a list of sites that had been carefully catalogued according to subject and content. Lycos' approach was to use a program (known as a "Web spider") that roamed the Web retrieving pages. This technological edge gave Lycos the upper hand in terms of the sheer number of Web documents that could be searched in its database. The problem is that everybody is doing this these days.

As a result, Lycos is trying to add value to its site in an attempt to keep its steady supply

of Web-searchers coming back for more. To that end they acquired Point Communications, which compiles a listing and reviews what they consider to be "The Top 5%" of all Web sites, and offered people a direct link to the "best" sites from Lycos.

You can also read the news at Point Now, which divides its selections from newspapers from around the world into sections divided into general news, business, sports, weather, and Net news. It also added "A2Z", a directory of popular entertainment Web sites.

As with Excite, none of these options directly enhances your search for information on the Web, but it may give you another reason for going to Lycos in the first place. Lycos is doing everything it can to stop becoming a Net has-been, and it is still one of the better search engines on the Web.

Magellan

<http://www.mckinley.com/>

(McKinley's Internet Directory) When Magellan started up, the developers took a distinctly different tack on assembling an online guide to the Internet.

Short descriptions on Web sites are common, and are usually supplied by the people who created the Web site and are hoping to promote it. This generally does not invite objective commentary. The McKinley Group put Magellan together and built in substantial editorial content by including a directory of rated and reviewed Internet sites. Its reviewers check out thousands of new sites every week and write up pithy reviews on them. xxx+2

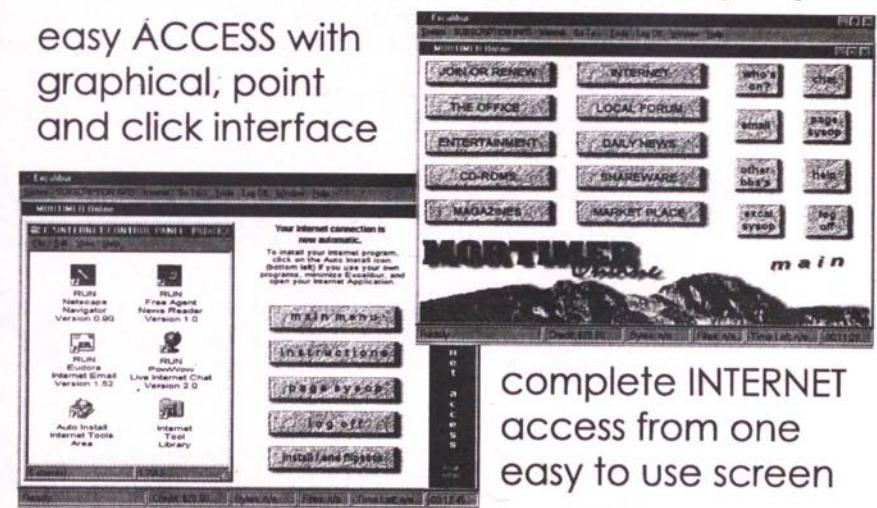
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"Net appeal," comprehensiveness and whether or not the site is thought-provoking. Based upon the eventual score, sites are given an image file that proudly proclaims the site as a Magellan award-winning site. Web authors are encouraged to place the image file on their pages, and to use it as a link back to the Magellan Web site.

This clever marketing strategy has made the Magellan award symbols common at many of the better Web pages. Problem is, now everybody is trying to copy Magellan, and there are so many Web awards available

that they have become something of a joke.

The reviews of the Web sites vary widely in their quality, and just because a reviewer enjoyed a Web site doesn't mean that you will, and vice versa. This is a quality inherent in any reviewing process—you either like it, or don't.

At Magellan you can also check out FTP sites, gopher servers, newsgroups, and Telnet sessions as well as Web pages. It is one of very few multilingual search engines. It is currently being translated into French and German and will be available for other languages.

Depending on who you talk to, Magellan's

display layout is either a showcase of what can be done with Netscape frames, or proves that framed Web pages are a bad idea. People who use Magellan are there because they like the reviews, and it has the most reviews of any search engine. If you don't like reading reviews, then there is not much else here that hasn't been done better elsewhere.

SaavySearch

<http://guaraldi.cs.colostate.edu:2000/form>

SaavySearch was a concept waiting to happen—why go through all of the trouble of creating your own search engine when there are plenty of good ones around?

Why not create a "meta-search engine"—one that searches several other search engines at once for you. That's exactly what the developers at SaavySearch did, by creating a "Parallel Internet Query Engine" which reports results from a keyword search from a selection of 19 Web search engines simultaneously.

SaavySearch is not particularly speedy, but it is about as thorough as you can get. When you submit a query, SaavySearch gathers the responses of several search engines—this process can take up to one minute, and in some cases, two. It uses a simple keyword search, and you are guaranteed to find something that matches what you are looking for.

The main drawback to meta-search engines is that they are only as good as the sources they draw upon—expect your searches to turn up the same information, appearing in different forms across several search engines. It is also prone to being overloaded. It is a good service, and the first of several meta-search engines to appear. It is worth checking out when you are looking for something you haven't been able to find elsewhere.

Yahoo

<http://www.yahoo.com/>

Yahoo does not have the largest database of Web pages, but it is easily one of the most popular search engines on the Web. Yahoo was started by a couple of Stanford University grad students who put together their list of favorite Web sites when they weren't working on their engineering PhDs.

Several features make Yahoo stand out. It has enough Web pages in its catalogue to virtually guarantee a few matches on any topic. You can use the keyword search by entering a word into its search engine, or you can go through their extensive, cross-indexed directory of subjects.

The directory is divided into 14 main categories: Arts, Business and Economy, Computers and Internet, Education, Entertainment, Government, Health, News, Recreation, Reference, Regional, Science, Social Science plus Society & Culture. The search engine is powerful and easy-to-use. Each listing comes with a semi-detailed description and often a picture from the site. All the sites listed are guaranteed to be interesting, because of Yahoo's "if we don't link it, we figure you won't like it" philosophy. It is also zippy, and responses to queries only takes a few seconds.

Yahoo has a lot of innovative extra features that are useful. It was the first to list its daily additions to the Web site, which now typically number in the low thousands. Users who are interested in a weekly dose of fresh and interesting Web sites can subscribe to Yahoo's Picks of the Week list. There is Yahooligans (<http://www.yahooligans.com>), a subset of Yahoo's catalog aimed at children, and the innovative Yahoo Remote service.

If you have a JavaScript-capable Web browser, click on the Yahoo Remote button, and up pops a small window that you can take with you as you surf the Web. Instead of going directly back to Yahoo for information, enter it into Yahoo Remote, for instant access to Yahoo. Whenever you do a search and



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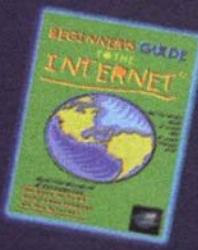
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Estimated Street Price: \$560 (model 2144 = \$700)



Multifunction peripherals (MFPs) combine the functions of a printer, copier, scanner, fax and fax/modem into one reasonably proportioned desktop machine.

MFPs have been around for a couple of years, but only recently, as the variety of products has grown and the prices dropped, have they commanded the attention of the average consumer.

I saw my first practical MFP at a computer trade show two years ago but—at \$2,500—the item on display paradoxically cost more than the combined price of an ink-jet printer (\$550), stand-alone fax (\$450), hand scanner (\$150), personal photocopier (\$450) and fax/modem card (\$125). The real advantage pushed at the time was economy of desk space over just plain economy. Even now, with most estimated street prices hovering at \$1,200 to \$1,500, MFPs are at the upper end of peripheral affordability.

The Lumina difference

So how can Lumina sell a true MFP for \$560 when everybody else wants \$1,200 or more? The rejoinder says less about covert corporate cartels than good ol' American ingenuity. The Lumina people reasoned that most computer owners already have a printer. Chances are they've already been through the ringer of studying and reading and shopping and comparing to arrive at a choice that best suits their needs. Why then, those canny Lumina

Continued on page 76

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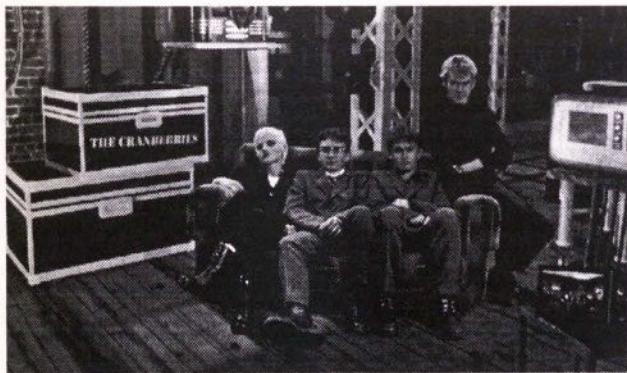
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Per Month

The Cranberries prove a little sour

Disc fails to exploit multimedia potential

BY ROSS MCDONALD



The Cranberries: doors and windows

CD/CDi/MPEG/CD-ROM
From: Philips Media
Estimated Street Price: \$29.95

The Cranberries: doors and windows is another of those multi-technology discs burgeoning from pop music circles of late. Capitalizing on the fleeting popularity of multifarious musicians has necessarily become an art for music moguls who can no longer rely on taste or talent to figure out who or what will last (whadya hear from Cyndi Lauper, or Mitsou or Edie Brickell. Whadya figger Alanis Morissette's going to be up to

five years from now?).

Well, one of the heppiest ways to squeeze extra dollars out of oblique artists is to produce these CD/CDi/CD-ROM discs—that's compact disc, compact disc interactive and compact disc-read only memory—that invariably tout "previously unreleased versions of" what have you, "exclusive scenes of" whatever, "rare personal" whatnot, and etc. etc. And this Cranberries disc is no exception.

Made specifically for the truest, bluest fans of this overnight Irish sensation, The Cranberries: doors and windows promises "previously unreleased versions of" five songs, "exclusive" scenes of Woodstock '94 and "rare personal" photos, clippings and memorabilia from all the band members. All very tasty if you like Cranberries.

However, there's more CD than CD-ROM about this disc as the multimedia aspects of digital technology have definitely been given a back seat to the music. Up against 10 whole minutes of video (plus 5.5 minutes of digital video) stand 40 minutes of music and audio—

most of which is coded for your CD player.

Unfortunately, even Cranberry aficionados with only a modest taste for multimedia are destined for disappointment because that collective 10 minutes of video has been severely diced into a couple of dozen clips. And you don't have to have a calculator handy to estimate the length of each at that rate.

Regardless of that, doors and windows is chock full of the kinds of things that those with a hankering for Cranberries will undoubtedly find appetizing. Those short clips of performances and backstage/tour bus activities are eminently

watchable and there are a full 90 snapshots to look at while listening to their very good music.

Though tailored specifically to Cranberry admirers, this reasonably priced disc might draw others who simply enjoy an eclectic musical palate or even collectors of may-become-obscure-and-worth-something memorabilia.

Despite my disappointment at the minimal multimedia, this Cranberries disc is not a turkey. □

Contact: Philips Media, Worldwide Plaza, 825 8th Ave., New York, N.Y., 10019. Tel: 212-333-1384.

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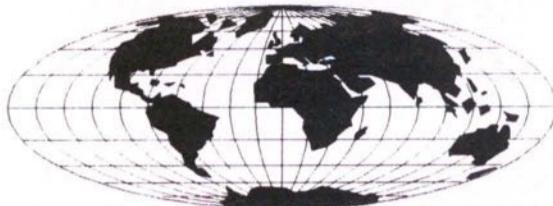
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Lumina MFP

Continued from page 74

people asked themselves, should we make them purchase a second printer?

The result, I'm assured, is a unique MFP product. Where virtually all other true MFPs are printer based, the Lumina Series 2000 is centred on the fax engine. The unit is smaller, lighter and cheaper than any of the others because it performs all the printing functions using your existing printer — as long as you have one of the more popular models of ink-jet or laser printers.

That being the only real difference from other MFPs, the Lumina is a fully featured plain paper fax machine, fax/modem, scanner and copier that connects to your computer through the parallel and serial ports just like any other MFP.

Optimizing the desktop

The Lumina is deceptively small and light, with three simple control panels and an LCD screen traversing the entire top/front panel. The raised buttons on all three of the Series 2000 control panels are well spaced and evoke a variety of "beeps" to acknowledge prestidigital success. And, lacking a printer engine, paper handling is through a single slot from the 30-sheet paper bin straight through to the front of the machine in a fashion identical to a standard, standalone fax (all other paper handling depends on your own printer).

My Lumina came bundled with Phoenix's Eclipse Fax software and a single diskette package for controlling the various functions through your computer. The press kit I received discusses the addition of an OCR package from Phoenix as well as an electronic file management application called Documagix PaperMaster SE, but these were

not in the box I received. And, perhaps also because mine was a pre-shipping unit, the documentation included a sheet warning of certain incompatibilities between Windows 95 and the Lumina control panel software.

Though certainly not tragic — and soon to be fixed — that very small sample from the Lumina literature is a good indication of how comparatively complex this machine is to get going. The user's guide is an unintimidating size, but any confidence you start out with soon evaporates as you begin to read the copious instructions. The Installation chapter alone constitutes five jam-packed pages.

The specifications for the Lumina are respectable if not overwhelming. The standard 2096 version comes with a 9600 bps modem that has an eight-page memory (the 2144 model has a 14,400 modem and 60-page memory). The scanner is a disappointing 1-bit CCD type but capable of 408 x 392 dpi resolution and achieves 64 grayscales through enhanced dithering (that means the software spruces things up). The copier function lets you scale your copy size from 25 percent to 250 percent of the original.

The only options available for the Lumina Series 2000 are 1 MB and 4 MB memory upgrades and a telephone hand set to let you get your phone off the desk too.

Overall, the Lumina Series 2000 MFP is well built and excellently conceived, though I'm not entirely enamored with the documentation or the aesthetics — this machine is unnecessarily plain. But at under \$600, you certainly can't lose, unless you're unhappy with your current printer and were planning on getting a new one. □

Contact: Lumina Office Products, 265 Santa Ana Ct., Sunnydale, CA, 94086. Tel: 800-839-0143, 408-992-1088. Fax: 408-992-1090

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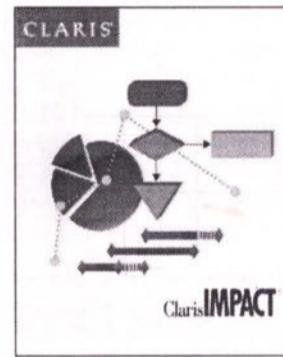
BY ROD LAMIRAND

ClarispACT 2.0 (for Windows or Macintosh)
Price: \$199 (\$69 for upgrade from Version 1)

At *The Computer Paper*, we see every sort of software imaginable during the hustle to meetings and the bustle to deadlines that our monthly schedule dictates. One software truism that we've come to notice is that programs which try to do everything usually fail at doing any one thing well.

Happily, this month we ran across a polished, professional program that proved the exception to the rule.

Originally only written for the Macintosh platform, the program was ported over to Windows and survived the adaptation without serious technical problems or any visible alteration of the interface



In the April '96 issue of *TCP* we looked at business presentation/graphics programs. One important omission was a new product from Claris Corporation. ClarispACT for Windows bills itself as "automatic charts, diagrams and more." This software, and its identical sister ClarispACT for Macintosh, is a solid, well-crafted 32-bit program that is easy to use, highly flexible and fun!

Claris is best known for its ClarisWorks suite, which made one of the most graceful operating system transitions in the history of the business. Originally only written for the Macintosh platform, ClarisWorks was ported over to Windows and survived the adaptation without serious technical problems or any visible alteration of the interface.

Now, Claris has brought out another program which lives equally well on either operating system and maintains a completely consistent interface. This 32-bit program can run on Win 3.x but you will have to use the Win 32s which comes with the package. This evaluation only utilized Win 95.

ClarispACT is a program that creates, and/or imports and modifies, business information for presentations, business letters, company charts, calendars, letters, spreadsheets, and practically anything else that comes out of your printer.

If you need a flowchart, there are templates or you can start from scratch. You can use any of the scores of flowchart symbols that come on this seven-disc program, or create a new symbol

and add it to the clipart library. It allows you to simply grab a graphic from a paint program and drop it into a slide presentation, business letter, report, outline or company logo.

ClarispACT is first and foremost a solid program. It allowed me to import and export into multiple, different formats without a fuss. It took a Corel PhotoPaint graphic as easily as it exported to the Windows Paint program. It opened a Word for Windows document as well as it saved my Excel data.

Second, it is flexible. In the chart I made with scanned photos of friends for a test doc-

ument, were components that I later used in a dummy business letter that I concocted.

If your logo is looking a little tired, open it with a paint program, touch it up and put it back in the 2,000 picture clipart library. You can pull in photos, sound data, video clips or any OLE 2-compliant data. ClarispACT includes 32 data chart types and a simple interface for creating them. You can edit and stylize charts in a variety of ways. The program is full of pre-designed combinations of fonts and color schemes that help you quickly communicate your data in an attractive graphic format.

I found nothing to complain about with this program. Sure, it doesn't support right button clicking as most newer Windows 95 programs do but that is simply so it remains true to its cross platform consistency (there is only one button on a Mac mouse).

In fact you can take a ClarispACT file, save it to disk and then pop it into a DOS-aware Mac and Voila!, complete compatibility. This program is not a complete paint and draw program like Micrografx's ABC Graphics Suite, nor is it a simple flowchart and business letter program.

But ClarispACT is an extremely flexible mid-ranged business/SOHO program that will do most information presentation jobs, and do them most professionally. □

Contact: Claris Corp. Inc., 5201 Patrick Henry Dr., Santa Clara, CA, 95052. Tel: 800-361-6075.

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Partition utility truly magical

PowerQuest's product makes
for quicker, smoother resizing

BY JEFF HILDEBRAND

After receiving my review copy some time ago, I finally found the time and the excuse to try out PartitionMagic (PM)—OpenDoc 1.0 for OS/2 was finally released for general availability and I wanted to check it out.

The zip archive for OpenDoc was 7.1 MB—no problem there. Unzipping it consumed another 10 MB or so—still no problem, that partition had plenty of space.

Browsing the README for OpenDoc revealed that to install the OpenDoc runtime, I would need 21 MB—a big problem, since the partition where I beta-test software had only about 14 MB available.

Most users are familiar with the annoying procedure of resizing partitions the old way: first, the partitions to be modified had to be backed up; then blown away with FDISK (or a comparable utility), reallocated with new sizes, and then all the files had to be restored.

If you were lucky, this sort of job would only take up an entire evening. Partition-

Magic is a truly magical utility that can save you hours—or even days—of work.

Here's what I did with PM:

My two offending partitions were a swapdisk with no useful information and my betadisk, which holds only OS/2 and any software I might be evaluating.

I skipped what would otherwise be an essential part of the process—backing up my old data. (Note: It can not be stressed enough that if you value your data at all you should back up your disks!) PM does what it can to ensure the integrity of your data, but things like unexpected power outages can still wreak havoc with your machine.

The second step was to fire up PM and run a check on both partitions. Once this is done, PM will be happy to shrink, move, expand, create, delete or format partitions. As it turned out, I needed the first three options. I shrank my swapdisk to free up some space on the drive, moved my betadisk partition to the start of the free space, and then ➤

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TRAINING

expanded that same partition to include the space I had freed.

The entire process took about 30 minutes, and that time probably doesn't do justice to PM.

Since it was my first time using the program I did not turn on the "Skip bad sector checks" option, which was not really necessary as all of the disk has been in use previously and I was pretty sure there were no bad sectors. Scanning for bad sectors before a move or expand operation is probably the most time consuming part of the procedure. Had I turned this option off, I could probably have been done in 15 minutes.

After the changes were complete and I selected "Exit," PM informed me that I had to reboot to enable the changes made to the partition table (the dialog comes up with a Reboot button to hit once you are ready to shut down). After rebooting, the first thing I did was run OS/2 from my beta-test partition, which came up just fine. In fact, other than the change in the free space on that partition, everything was exactly as I had left it.

In this test drive of PM, I only covered about half of its capabilities. PM v2.0 is now a complete replacement for FDISK (the previous v1.0 did not duplicate any functions already

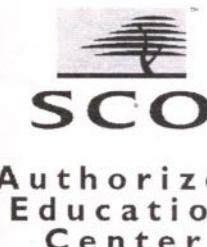
in FDISK, like the creation and deletion of partitions). It can format partitions as HPFS or FAT, as well as return detailed information similar to CHKDSK. PM does its best to keep you informed about the progress of the selected operation, often with several progress bars, each indicating the status of different parts of the operation.

Perhaps the best way to show the commitment to quality that PowerQuest has would be to highlight the differences between v1.0 and v2.0 of PM.

Continued on page 82

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CALENDAR

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ISOFTWARE BC: "LUCK MATTERS: THE VP PLANNER STORY". June 26, 1996. The Diamond University Club, Thompson Room, SFU, Burnaby, BC. Dinner meeting. Space is limited - to reserve a place call the TIA at 683-6159.

ICCA DINNER MEETING. June 26, 1996 (Wed.). Last meeting before the summer break! If you're not yet a member, this is a perfect opportunity to find out more about the association - meet the directors and network with members. This month's speaker TBA - please check our web site (<http://www.icca-bc.org/icca/events.htm>) or call for current details. For more info & reservations call 682-2747.

CD-ROM FESTIVAL '96. June 28-30, 1996. Edmonton, AB. For more information contact Vernon Samaroo at NAIT/Multimedia Applications (403) 421-7622.

JULY

LAN EXPO '96 at COMDEX/Canada, July 10-12, 1996. Toronto, ON. For more information contact Adam Torres at Softbank Comdex (617) 433-1807.

WINDOWS WORLD '96 AT COMDEX/CANADA '96. July 10-12, 1996. Toronto, ON. For more information contact Robert Berkowitz at Softbank Comdex (617) 433-1806.

COMDEX/CANADA '96. July 10-12, 1996. Toronto, ON. For more information contact Adam Torres at Softbank Comdex (617) 433-1807.

AUGUST

RENDEZ-VOUS '96 TRADESHOW. August '96. Toronto, ON. For more information contact Claude Thibault at Groupe Expocor Inc (514) 844-0502.

RENDEZ-VOUS '96 COMPUTER DEALER SHOW. August '96. Toronto, ON. For more information contact Claude Thibault at Groupe Expocor Inc (514) 844-0502.

INTERNATIONAL IEEE ENGINEERING MANAGEMENT SOCIETY CONFERENCE. August 18-21, 1996. Vancouver, BC. Theme: "Managing virtual enterprise: A convergence of communications, computing and energy technologies." For more information (509) 373-2418.

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START-UP STEPS TO SUCCESS. Small business seminars offered by Sherry Naso. \$5 Members, \$10 non-members. Held at Coyote Creek Golf Club, 7-10 p.m. For more information call: 597-8117.

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HRMS/EXPO. August 26-28, 1996. San Jose, CA. For more information contact show manager Lori Silva (800) 232-3976 or lsilva@blen-ms.mhs.compuserve.com

CLASSIFIEDS

ADVERTISING IS FREE FOR INDIVIDUALS. For business, classifieds are \$7 per line (40 characters). Send in your ad, along with your payment for the August issue by Monday, July 8, 1996. Individuals: to qualify for a free ad, the ad must be for a one-of-a-kind item. Free ads qualify for one month in the local edition only. All other ads classify as business ads and are subject to the \$7 per line charge. *The Computer Paper* reserves the right not to print submissions.

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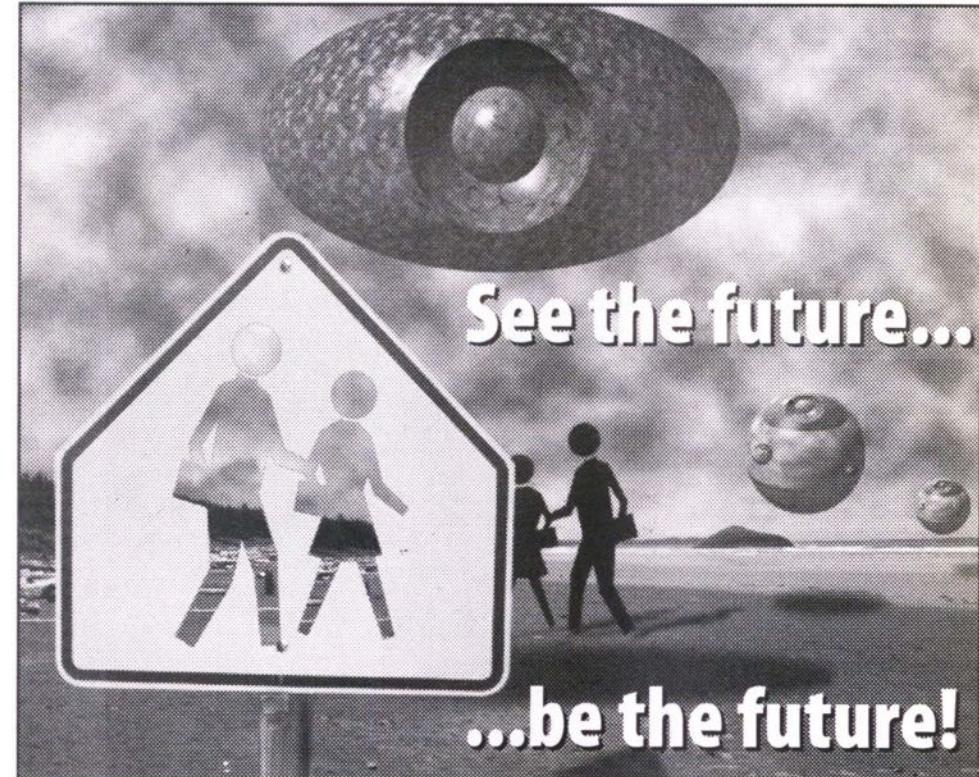
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We are proud to announce our new Web Masters Program for the fall of 1996.

Web authoring is the hot job market now and for the next decade. The program will include extensive instruction in digital graphics, imaging, virtual world building, audio, video, multimedia authoring, HTML, VRML, JAVA tools, on line gaming and other new technologies. Corporations are embracing the net like nothing we've seen in a long time. Everyone is clamoring to get a hot web site up quickly and finding a severe shortage in qualified personnel able to get them there.

The program will be very hands-on, with students producing their own home pages almost immediately. High-end equipment will be utilized including Pentium 166's, Pentium Pros, and Power Macs. Support training will include:

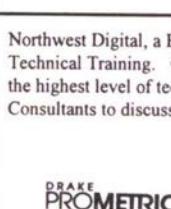
- Fundamentals of Art and Design,
- Foundation for Advanced Computer Technologies
- Media Communications and Marketing.

There are two web oriented programs available this fall. The extensive Web Masters Program will be twelve continuous months while a shorter apprentice program will run over four months.



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From Alta Vista to Yahoo

Continued from page 72

Yahoo cannot find a match, it automatically sends the search terms to the Canadian-based search engine Open Text (<http://www.opentext.com>), for more results. If that doesn't turn up anything, you can click a link to send your search terms to another search engine.

Yahoo does have shortcomings. It searches for words that appear in the titles, address or description of the sites that appears in its catalog, so it is not likely to find a keyword appearing in the body of a Web page. As one

of the first search engines to appear, it has a lot of references to Web pages that no longer exist. But despite those limitations, its many innovative approaches ensure its reputation as one of the more popular search engines/directories on the Web. Yahoo is still hard to beat.

Endless Searching

So which one should you use? It all depends on what you're looking for, and how adept you are at surfing your way around the Web. It's always a good idea to keep a bookmark list of several Web search engines and directories in your Web browser, though ultimately, stick with whatever works best for you. □

TRAINING CON'T

Partition utility magical

Continued from page 79

	PM v1.0	PM v2.0
<i>Manual size</i>	75 pages	124 pages
<i>Operations</i>	shrink, move, expand	shrink, move, expand, create, delete, format, resize clusters
<i>Recognized file systems</i>	FAT, HPFS	FAT, HPFS, NTFS, Linux ext2, NetWare
<i>Resizable movable platforms</i>	FAT, HPFS	FAT, HPFS
	DOS, OS/2	DOS, OS/2, Windows, Windows 95

This is not a comprehensive list of changes, but it does give a fair indication of the work PowerQuest has put into v2.0. I should also mention here the quality of the manual. A page count as given above doesn't

really say anything about the quality of what is printed on those pages.

The manual for PM v1.0 was excellent. It gave an overview of what partitions are and why they exist, how to install PM, how to use it, a glossary of terms and an index.

The manual for v2.0 gives more of the same. All of the new functions require more screen shots and examples, and the glossary and index have both grown. Besides being an excellent manual for PM, it is also an excellent introduction to disk drives, partitions, file systems, and disk management.

One thing that the table does make perfectly clear is PowerQuest's commitment to its product. With steps taken to improve virtually every aspect of PM, it is already an indispensable utility for most home and corporate users. □

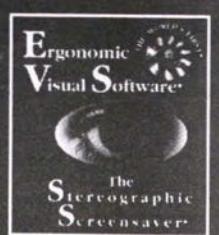
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USER GROUPS

ATTENTION USER GROUPS. Send in your listing (maximum 120 characters) for the August issue by Monday, July 8, 1996. Submissions run for one month only in the local edition. *The Computer Paper* reserves the right not to print submissions which are deemed unsuitable.

ACM/SIGGRAPH Computer Graphics. 2nd Tuesday, at 201-1140 Homer St. Call Tom Berryhill at 734-3976.

ADAM OWNERS! Vancouver Island Senior ADAMphiles (Visa): newsletter, meetings, supplies. Contact David Cobley, #17, 885 Berwick Road, Qualicum Beach, B.C. V9K 1N7. (604) 752-1984.

ALT.2600 VANCOUVER USER GROUP. Meeting are 1st Friday of each month at Pacific Center Mall by payphones in Food Court, north of Dunsmuir at Granville 4pm to 9pm. Starts early to catch the evening shift 2600ers. For more information contact Steve via email at < sage@vanbc.wimsey.com> or < sage@rainbow.descon.com>

AMIGA USER GROUP (PaNorAmA) For meeting times and place call: Ray Norman 589-7199 or Robert Hardy 942-8364. BBS numbers 231-0363 or 231-0364.

APPLES B.C. COMPUTER SOCIETY. A User Group for Macintosh and Apple IIs. Macintosh meetings are on 3rd Wednesday of each month at the York House School in Vancouver at 7 p.m. Novice and other special-interest groups are held mid-month. Apple II meetings are on 1st Monday of each month at 7 p.m. at the Century House in New Westminster. For further info call 437-9935 or 299-9597.

ATARI USERS! Vantari, P.O. Box 3614 Main Post Office, Vancouver, B.C., V6B 3Y6. Bill Sutherland 988-1450; Don Hatch 433-8055. Meets 2nd Wed, 7:30 p.m., Hastings Comm. Ctr., 3096 E. Hastings.

B.C. EDI USER GROUP. For more information call 532-8204 (preferred), or voice mail 532-8219.

B.C. INTERGRAPH USERS GROUP (BCIUG). Contact: Mike Barnes 528-1936 (voice) or 528-2944 (Fax) for info on next meeting.

B.C. OPENSTEP GROUP. Regular monthly meetings focus on various themes, for single users, corporate users and developers in the Vancouver area. NextStep and Open Step are the preferred platform for rapid development. For meeting information and email server call Kevin Hiebert at 264-1584 or <kiebert@wimsey.com>.

B.C. REGIONAL USERS GROUP SOCIETY of Hewlett-Packard Users. For info, call Daren Statichuk at 661-8753 or BCRUG at 661-8048.

B.C. VAX/VMS Local Users Group (BCVAXLUG) provides a forum for the professional growth and education of its members through the exchange of solutions, ideas, and opinions. User group meetings are held the 3rd Wed of every other month at 6:30 p.m. and location to be advised. For further info please call voicemail 276-6966.

BIG BLUE AND COUSINS. P.O. Box 5309, Station B, Victoria, V8R 6S4. General meeting last Wednesday, 7:30 p.m. at U. Vic-Elliott Bldg., Lecture Theatre 168. Also, special interest group meetings. 382-3934.

CANADIANS ON COMPUSERVE. Canadians around the world and anyone interested in things Canadian are joining the Canadian issues section of The Issues forum on Compuserve. Lively discussions center around politics, society, customs and conflicts. Plus, there's a growing library of Canadian files. Go Issues at any CompuServe prompt. Dial 1-800-848-8199 for more info.

CIPS VANCOUVER SECTION. (Canada's largest Association for Computer Professionals). CIPS Members enjoy unparalleled networking and professional development opportunities at our monthly meetings and special events. Discounts offered for student members. PO Box 20522, Howe St, Vancouver, B.C. V6Z 2N8. Phone (604) 681-2796 or Fax (604) 689-1879 for next meeting date.

CONSULTANT USER GROUP. (Associated with the Vancouver PC User Group). Educates consultants. Sharing of ideas. Business side of being a consultant. Meetings are the 3rd Thursday of the month, at the Oakridge Library, Meeting Room, 191 - 650 W 41st Ave., Vancouver. Southwest corner of the mall next to the Valeto Cleaners, 5:30pm. Free. For further information call: RitchNet: 432-6554 or syy@infomatch.com

COREL ARTISTS USER GROUP. Last Tuesday of every month, 7:00 to 10:00 pm, at Kwantlen College in Richmond, BC. Monthly newsletter. Contact: Bev Harcus, 533-5854.

DATA-LINK/USERS GROUP. Tel 321-3387. PC support BBS: 321-8873 (24 hr service), with specialized self-made BBS software. The purpose of this User group is to allow users to get together for problem solving, discussion of setup and to meet people. Call by voice 8 a.m.-4:30 p.m. ONLY please. This group is dedicated to RoboBOARD by Seth Hamilton. Other BBS software are welcome. Membership is free!

FOXSOFT, EDMONTON'S FOXPRO USERS GROUP-second Tuesday, 7:00 p.m., Grant MacEwan City Centre Campus, East Wing, Room C-137/C-135, 10700-104 Ave. Contact: Ken Rayner at 437-0315 or Robin Stuart at 460-3712 (days). Info Bulletins on BBS 457-4105.

GENERIC CADD USERS GROUP. Contact: Frank Zander (604) 582-8283. BBS: 294-8287 (9600 n,8,1).

HELP DESK INSTITUTE LOCAL CHAPTER. An organization providing training, education and a networking forum for Help Desk Professionals: Those people who help computer users with hardware or software problems. For more information on memberships, please call Gary Taylor at 665-0728 or Karen Yuen at 665-5799.

INDEPENDENT COMPUTER CONSULTANTS ASSOCIATION OF BC. The ICCA is a non-profit association of consultants who provide services in the field of Information Technology. The objectives of the ICCA are to provide a forum where consultants can network with each other, exchange ideas, and improve their business and computer skills. Monthly meetings with speakers. For further information contact us at: PO Box 820, Bentall Station, Vancouver, BC V6C 2N6 tel: 682-2747 fax: 681-0916 email: icca@mindlink.bc.ca / WWW: http://www.icca-bc.org/icca/

LOTUS NOTES. - see *Pacific Notes User Group*

MACWEST COMPUTER SOCIETY. Meetings for members and visitors include PD copy sessions. General meetings: 2nd Wednesday of each month: Beginner's meetings: 3rd Wednesday of each month. 7:30 p.m., Guildford Public Library, Surrey. Messages and information at 268-9530.

MS ACCESS TECHNICAL USER'S GROUP. For those who want to participate in learning more about MS Access. For information call Greg Hind at 454-0262, from 9:00 to 5:00.

NANUGS (Northern Alberta Novell Users Group Society) - meets quarterly at the CompuSmart store on Mayfield Road. For information, please e-mail to nanugs@freenet.edmonton.ab.ca or phone Mike Brown (403)487-7666.

OBJECTS USER SOCIETY. See British Columbia OpenStep Group (B.C.O.G.).

OPENSTEP USER SOCIETY (VNUS). See British Columbia OpenStep Group (B.C.O.G.).

PACIFIC NOTES USER GROUP (PACNUG) - Lotus Notes users meet the last Wednesday of each month. 5:15pm on 18th floor, Waterfront Centre, 200 Burrard, Vancouver. Contact Delores Beier at 988-2141 or delores-b@awcda.com.

PC/MAC USER GROUP. Wanted Professional Photography/Graphic Designers to share, network and learn the latest hardware and software programs available. Starting May 7th we will meet at 7:00pm every 1st and 3rd Tuesday of the month, at Tricera Computer Center, #203-1836 W 5th Ave. If you are interested please contact: B. Hanington at either 873-6915 or rasta@mindlink.bc.ca for further info.

PORT COQUITLAM COMPUTER CLUB. Commodore, Amiga & IBM. 1st & 3rd Tuesday, 7:30 p.m., Room 104, George Pearkes Jr. Sec. School, 1390 Laurier Ave., Port Coquitlam. Mike Evans 942-4286.

POWER BUILDER. User group being formed. Meetings are planned for first Wednesday. To enroll call Perform System Developers at voice mail 604-264-0247.

SQL SERVER. User group being formed. Meetings are planned for first Monday. To enroll call Perform System Developers at voice mail 604-264-0247.

T.I. 99/4A COMPUTER B.C. 99er Users Group, every Thursday 7-10 p.m. For information, call Ron: 522-2598. 1st Thursday Tutorials, 2nd Thursday General, 3rd Thursday Tutorials, 4th Thursday Library night. BBS "Dial A TI" 522-9830 TI only please.

TEENS IN VANCOUVER USER GROUP. For teens under the age of 16 interested in doing computer related projects regularly, WWW, programming, games; anything! The main goal is to share computer knowledge and to make friends. If there are any homeschooled interested, that would be great. If interested, please call Orton Mak at 926-2835.

THE TOPKIDS CLUB. A user group for kids, teens and parents. Monthly meetings are family focused with software/hardware demonstrations, guest speakers, Windows and Mac tips and online demonstrations. A BBS is available to members. Call Garland

Coulson 279-5439 or email garland_coulson@topkids.com

VANCOUVER AUTOCAD USERS SOCIETY. 1st Wed. of the month, 7:30 p.m., B.C.I.T. Bby. Campus Bldg. SW5 Room 1850. Contact: Frank Zander (604) 582-8283.

VANCOUVER DATABASE USER GROUP is official user group sponsored by Borland Canada for dBase and Paradox (both DOS and Windows). The group meets on the 2nd Wed. of each month, 6:30 p.m. at Doppler Computer Store, 485 W. 8th Ave., Vancouver. Meeting agenda is distributed via fax monthly. Contact Michael Li at (604) 432-1709 to add your name to their database.

VANCOUVER DELPHI DEVELOPERS ASSOCIATION meets once a month at the Vancouver Public Library (downtown). The meeting is usually on the 2nd or 3rd week of the month on Tue or Wed depending on availability of facilities. The purpose of the group is to provide

Continued on page 85

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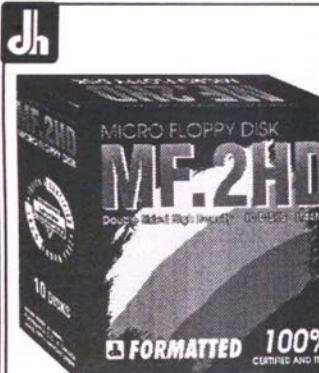
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VANCOUVER WINDOWS NT USERS GROUP (VANTUG) is a forum for both developers and administrators interested in sharing their NT experience with their peers. Meetings are held every two months at the Justice Institute of BC (JIBC) in New Westminster. For more information, contact Glen Houghton at glen@jibc.org or at (604) 528-5501.

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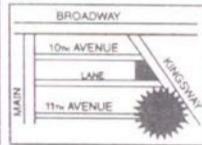
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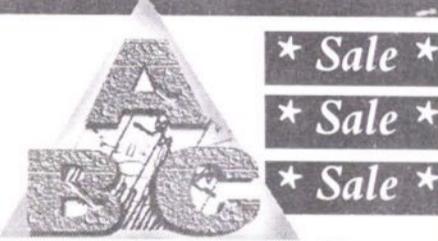
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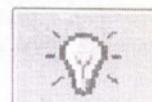
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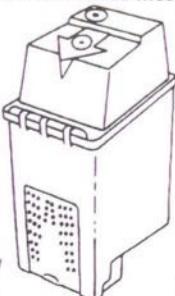
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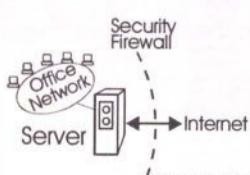
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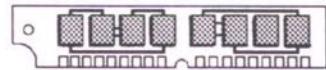
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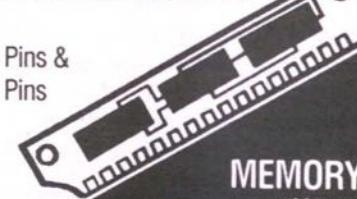
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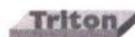
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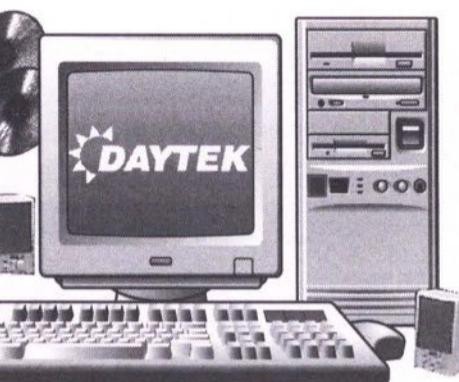
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* Norton SI 6.0 for Win95

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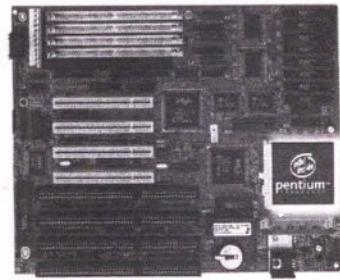
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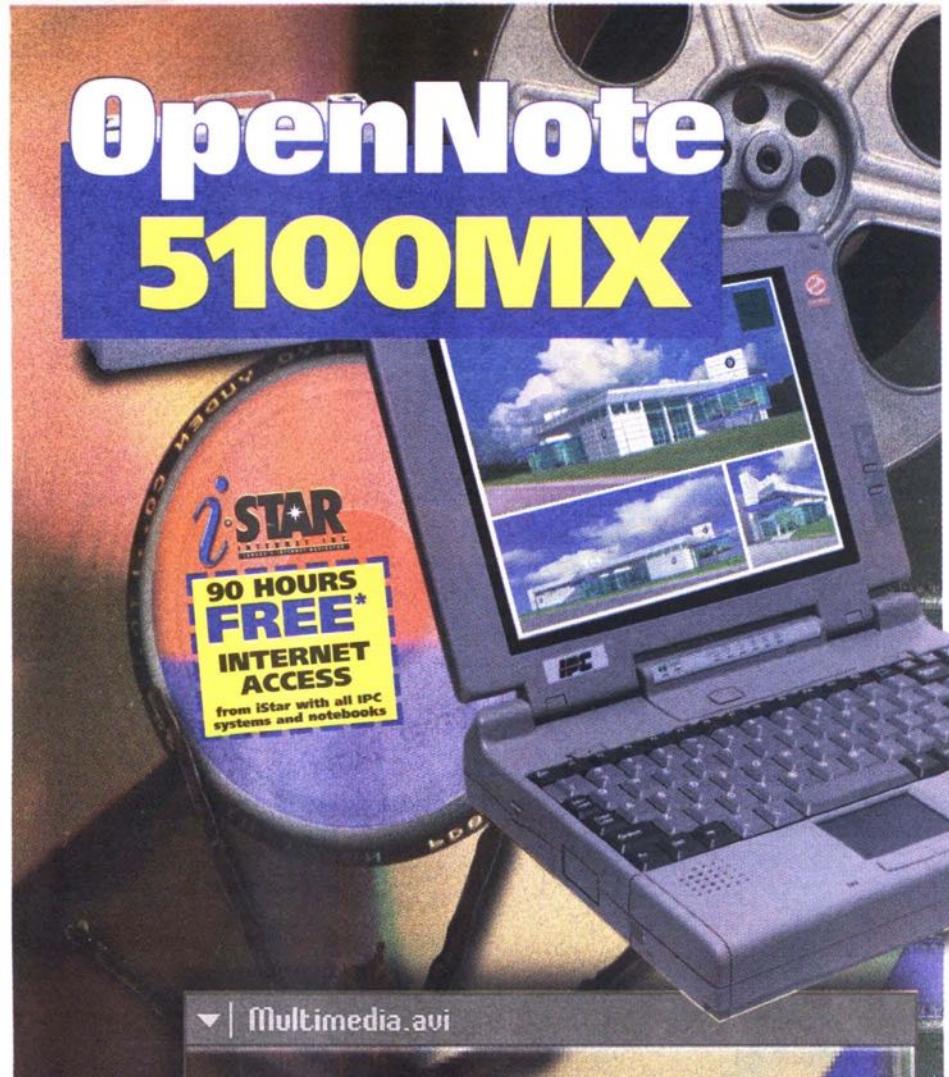
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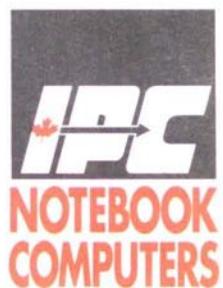
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- Built-in 3.5" high density floppy drive
- Internal 6X speed EIDE CD-ROM module option
- Windows 95 - 86 key keyboard with built-in touch pad
- Built-in 16-bit stereo sound card
- Built-in stereo speakers and microphone
- Two PCMCIA slots
- 25-pin parallel port with EPP and ECP
- Infra red, external keyboard, monitor, serial, and game ports
- Rechargeable NiMH battery, AC adapter
- Carrying bag, car cigarette lighter adapter
- Microsoft Works and Microsoft Plus pre-loaded
- Windows 95 pre-loaded
- Three year limited warranty



IPC OpenNotes ship with Microsoft Windows 95, Works 95, and Plus

OpenNote•5100MX

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- Intel 75, 100, or 120MHz Pentium® processor
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- 32-bit local bus with video accelerator
- 1MB video memory
- 8MB RAM expandable to 40MB on board
- 530MB, 810MB, 1.0GB, or 1.3GB 2.5" IDE drive
- External 3.5" high density floppy drive
- 84 key keyboard with built-in track-stick
- Built-in 16-bit stereo sound card
- Built-in stereo speakers and microphone
- Two PCMCIA slots
- 25-pin parallel port with EPP and ECP
- External SCSI (7 device), keyboard, monitor, and serial ports
- Rechargeable NiMH battery, AC adapter
- Carrying bag, car cigarette lighter adapter
- Microsoft Works and Microsoft Plus pre-loaded
- Windows 95 pre-loaded
- Three year limited warranty

OpenNote•5120

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- 530MB hard drive

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OpenNote•575

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- 530MB hard drive

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